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During the two stages of the investigation (1964-66), observations of children in freely formed playgroups were conducted in 27 Israeli schools, Jewish and Arab. The cumulative record of play participants throughout the complete period amounted to over 120,000 units. Among the variables recoreded with reference to each play group were its size, its composition by grade and sex, ethnic or religious affiliation of the participants, length of play, incidence of quarrel, play area and surface, and the name of the game. An Encyclopedia of Games has been compiled, in which some 5,000 descriptions of games and their variants have been systematically categorized and encoded. An analysis of the extent of interaction in play between boys and girls has revealed that about one quarter of them play in mixed groups, with considerable variability in this respect depending on age and culture. In all cases, however, more girls play with boys than vice versa. Indeed, girls have fewer games which they call entirely their own. Typical boys' games have been distinguished from typical girls' games, on such characteristics as extent of interdependence between players, outcomes of winning or losing (both more characteristic of boys' games), and precise prescription of action sequences (typical of girls' games). The data has theoretical implications related to child development and to the nature of play and games. (Author)

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Final Report

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SCHOOL CHILDREN'S GAMES

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June, 1968

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I would like to thank the Israel Ministry of Education for making this research possible by giving me access to schools throughout the country.

I think I can state without hesitation that Raya Kalinhoff, Giora Kronzon, Amira Ravin and Elchanan Blumenthal are some of the most comprehensive "living encyclopedias" of games in the world today and could compete in their expertise even with children. It is only through their patient and meticulous work in sorting and comparing the thousands of game descriptions in our possession that this vast collection is turning into a useful source of information. Raya, Giora and Amira participated throughout the main stage of the observations in almost all the varieties of tasks which were involved -- observers and recorders, "contact-men" and supervisors in schools, game describers and data analyzers, and thus constituted part of a team with which to work was pure delight.

There were others and even earlier members of the team who, during the main stage of the investigation and partly already during the first stage, fulfilled all these roles. They were observers in the Jerusalem schools, and besides, took upon themselves the arduous task of travelling every week for over one year, by bus, car, plane or bike to the various schools that were involved in the main stage -- so as to ensure active presence on each observation day in every school, and smooth and sound running of the research. In particular, I would like to mention Sami Mari, who was responsible for much that was achieved in the Arab schools and Muhammad Habib-Allah who took over at a later stage, as well as Awni Habash, who was contact-man in one of the schools. The major burdens of responsibility in all other schools were divided amongst many (besides those already mentioned), but a major share of the burden was carried by Yoram Bilu, who was responsible throughout for one Jerusalem and one Tel Aviv school as well as by Rita Aloni, Reuven Gal, Elkan

Gamzu, Amos Goor, Talya Naftali, Michal Neuman, Ronit Shemer, Avigayil Yinon, Tsafrira Yourgrow and Sehavit Weiser.

Iris Levin has been with me on the project through the first and main stage. With her enthusiasm and optimism, she has been a pillar of strength which I could not have done without. While I was abroad, in the summer of 1966, Iris took over the general management of the research.

The first stages of the research were, as usual, particularly demanding and put a heavy strain and responsibility on those of my associates -- Ruth Feder, Shalom Hermon, Rivka Landau and Ariel Merari, in addition to Iris Levin -- who were in it from the beginning. It was a real privilege to have their enthusiastic cooperation in those pioneering times.

In the process of analyzing the data, the editing and styling of game descriptions was expertly done by Shmuel Meltzer and also, in part by Na'ava Shlomowitz. For the computer analyses, I could not have found a more effective programmer than David Salomon.

I would also like to thank the many teachers and head-masters who considered play an important activity of their pupils, welcomed us to their schools and provided us with all required information and more. Unfortunately, we had to reject much of the proffered help because their schools did not fit the standard requirements of our sample (a minimum number of children, no subdivision of the school yard, etc.).

The schools selected for the first stage of the investigation should be thanked especially since it was "on their back" and with the aid of their teachers and pupils that we tried out our methods of investigation, making them the victims of our trials. The participating schools were the following:

1. Beit-Remes, Haifa
2. Doresh Tsion, Jerusalem
3. Elyakim, Elyakim
4. Hasorea, Hasorea
5. Ma'ale, Jerusalem
6. Ma'alot, Hanevi'im, Haifa
7. Nahalal, Nahalal
8. Narkisim, Kiryat Tiv'on
9. Rimonim, Kiryat Tiv'on
10. Sarigim Mam., Sarigim
11. Sarigim, Mam. Dati, Sarigim
12. Spitzer, Jerusalem
13. Yavne, Kvutzat Yavne
14. Yalag, Haifa

I am most thankful to the teachers of the main stage of the investigation for their perseverance and readiness to work in the service of play. The local co-ordinators in each school, were an essential part of our supervisory team and had a major share in the description of games. The following are the schools which participated in the main stage, and their local co-ordinators:

1. Be'eri, Yaffo-Tel-Aviv
   Yehoshua Lev
2. Beit Hachinuch Hameshutaf Be'emek Hayarden, Deganya
   Utza Rol
3. Dubnov, Tel-Aviv
   Zehava Moses
4. Ein Ma'hel, Ein Ma'hel
   Muhammad Habib-Allah
   Mustafa Habib-Allah
5. Eisori, Nahalal
   Malka Golan
6. Giv'at Brenner, Giv'at Brenner
   Lea Shamban
7. Ma'alot Hanevi'im, Haifa
   Ofra Golan
8. Mevo'ot Be'er Tuvia
   Dalya Hanin
9. Ochuwa, Haifa
   Bassam Safadi
   Adit Shami
10. Sprinzak, Kiryat Gat
    Orna Galstein
    Yehudit Reznik
11. Sichron-Moshe (Achusa), Haifa
    Tamar Neiger
12. Tel-Hai, Kiryat Shmona
    Yehudit Bein

The two Jerusalem schools, in which students served as observers, were:

13. Metzada

14. Rehavia

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Finally, I must admit a deep gratitude to the thousands of children who obliged and played, undisturbed by our presence. It is their so often single-minded devotion to play and games that has made this a worthwhile enterprise.

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SUMMARY

The research described in this Report forms the major part of an extensive investigation on the play and games of children in freely formed, unsupervised play groups. The Report deals with school children at play during recess.

During the two stages of our investigation, over ten thousand children were observed and recorded at play. The records of play participants amounted to a cumulative total of over one hundred and twenty thousand units. An Encyclopedia of Games has been compiled, containing some five thousand descriptions of games and their variants.

SAMPLE AND METHODS. The observations were conducted in two stages. Throughout each stage, observations were carried out in 14 schools, spread throughout Israel. The complete study comprised a total of 27 schools, with one school participating in both stages. The schools were selected so as to constitute a balanced design of the following variables: geographic location (North, Center, South), socio-economic level and level of school achievement ('high', 'medium' and 'low'), community structure (town, new-immigrant town, village and kibbutz) and culture (Arab and Jewish).

The observations were conducted regularly, three times per week (first stage) or once per week (main stage) during recess, in the schoolyard and building. The team of observers in each school consisted of an average of 9 observers, including a local coordinator. They were teachers or students, who underwent a period of training in their research task. A supervising contact-man, from our Center in Jerusalem, was present in every school on each day of observation.

The method of observation stipulated that the area observed in each school be subdivided so that each observer covered a defined section, recording, on average, five play groups. Amongst the variables recorded with reference to each group were its size, its composition by grade, sex, ethnic or religious affiliation, length of play, incidence of quarrel, play surface and the name of the play or game. Descriptions of all play activities were also collected, mainly in separate interviews. They included unstructured play as well as structured games.

During the first stage of our investigation (April to June, 1964), observations of some 20,000 play participants were recorded over 18 observation periods. Although this was in many ways a feasibility study, the data collected proved considerably reliable, and formed the basis for the design and predictions of the main stage. The main stage of the research lasted from December, 1964 through April, 1966. During this stage a total of over 100,000 play participants was recorded, and the Encyclopedia of Games compiled.

RESULTS. Our general strategy of analysis assumes that children's play activities reflect their needs and capacities, and that through an intensive analysis of children's games it will be possible to differentiate those characteristics of play behavior that change "with age" from those which remain constant through different age levels; and that an extensive analysis, over a wide population sample such as ours, will enable a definition of the culturally variant aspects of play as against those which do not thus vary. Our approach to the analysis of the data aims therefore to combine description, analysis and hypothesis-testing. Rather like the comparative ethologist, we aim to examine games and behavior in play groups which turn out to be characteristic of a particular age, sex, socio-economic level, community structure and culture, so as to define their "species specific" attributes as well as attributes they possess in common.

The major lines along which our data has been analyzed thus far include the following:

Participation in Play Groups. Low-level children tend to play less, and reach their peak of play (in terms of percent play participation) at an older age than high-level children. Participation in structured games, as against unstructured play, increases with age but decreases again in the upper school grades. Major activities of non-players during recess are onlooking and conversation. Few children play alone, except in kibbutzim.

The Life Span of Games and Their Diffusion. "Supergames", which never disappear from the play scene, have been distinguished from "periodic" and "sporadic" games, and characteristics that determine the life span of a game have been defined.

Boys and Girls Playing Together and Apart. About one quarter of the boys and girls play in mixed groups, although there are considerable variations dependent on age and culture. More girls play with boys than vice versa. There are more exclusive boys' games and over one third of the boys participate in such games. There are few exclusive girls' games and few girls participate in them. Many more boys play in predominantly girls' games than girls do in predominantly boys' games. Typical boys' as against typical girls' games are characterized by greater interdependence between players, and definite outcomes of winning and losing; whereas girls' games can often be played alone and their interdependence is often only of instrumental character. Their play activities tend to be sequential and predefined by the rules of the game. Girls' games also tend to last longer than boys', to require less space, and to be played on hard surfaces.

Age Groups Playing Together and Apart. In spite of the school set-up which encourages age separation, about one quarter of the children play in mixed age groups. Games played only in the four lower school grades or in the four upper grades, are either boys' games or are played by both sexes. Games played exclusively in the middle school years are all girls' games. Boys quarrel more than girls, and there is more quarrelling in mixed groups than in age- or sex-homogeneous groups. The size of play groups increases with age. There are more players in even-sized than in odd-sized groups and more children of all ages play in groups sized two than in any other group size. Children in low-level schools tend to play in groups of smaller size than children in high-level schools.

The extent of participation in competitive games (with outcomes) increases with age amongst low-level children. More young high-level children participate in such games than do young low-level children. Kibbutz children play highly competitive games to a greater extent than town children. Only about ten percent of all players play games involving material gain, and there is little difference in this respect between ages or between high-level and low-level schools. There is an increase with age in the percentage of children who make use of materials and objects in their games. The number and variety of toys used, as well as the percent participants in games requiring toys is by far greater amongst low-level than amongst high-level children. However, these children use fewer "bought" materials (other than toys) and more "available" or "found" materials than do high-level children.

An analysis of the rules of a game as verbalized and as practiced at different age levels, demonstrates how the dialectic strain between a rigid attitude towards ideal rules and their liberal interpreatation in practice is resolved through the use of meta-rules.

Our data provides norms for the extent and types of play behavior of school children of the two sexes, at various ages. It contains information of direct relevance to rational planning and decisions in the field of education, such as the design of playspace and of suitable play equipment for children. It provides a sound empirical basis for the invention of educational games -- which will be recognized by children truly as games.

A crucial test of whether our analyses have significantly furthered our understanding of the processes involved, would be in the invention and planting of games "to measure" amongst non-captive, appropriate clients. We should also be able to predict the rate of diffusion of these games and their life span. Similarly, we should be able to introduce planned changes into existing games, and transform "sporadic games" into "periodic games" or "supergames", while retaining their essential ludic quality.

The present research project, as proposed, conducted and reported herewith, is a step in the direction of such a test. However, the vast and rich amount of data at our disposal holds promise for further exciting analyses from which, we believe, a comprehensive picture of child's play and its functions will eventually emerge.

INTRODUCTION

During the two stages of the investigation described in this Report, over ten thousand children were observed and recorded at play. The records of play participants over the extensive observation period, amounted to a cumulative total of over one hundred and twenty thousand units. To the best of my knowledge, the present research is by far the largest ever undertaken on school children's freely organized play and games. Group play and games are almost universally the major self initiated social activity of childhood. Because of the variety of children's play activities and because of children's great involvement in games, these activities reflect their level of maturity -- physical, cognitive, emotional and social -- from the small group of two toddlers who play side by side in the sand, to the intricate and changing structures required in the game of "thieves and robbers" (a complex form of tag, not to be confused with "cops and robbers") -- are a rich source of evidence not only for the level of development of children, but also for the major role of the peer group in directing this development; while the various game styles -- of physical skill, intellectual skill, imitation, strategy or chance -- provide an invaluable source for the study of enculturation processes.

The obvious diversity of this area of activity, its availability at every street corner, the fun inherent in its study -- none of these, strangely enough, have proven forces powerful enough to make fun and games a popular research area with investigators over the last thirty years. Indeed, the opposite seems to have been the case: Perhaps it is true, as some have argued, that games have not been intensively and extensively studied because they were not considered as serious activities but rather as peripheral, external to the serious business of living, neither affecting it, nor affected by it. More likely, the almost overwhelming richness of children's play activities was the more powerful deterring factor: because of the enormous variety in the material involved, only a very large scale study could possibly do it justice. Moreover, while it is true that children at play are not far to seek, a valid and reliable method for observing them while playing, has not been readily available.

However, the last decade has seen some surge of interest in the area of play and games as witnessed by various directions of research which have opened up: though educational games have been available in the market and in the school room for some time, their invention has been rather a hit-or-miss affair, depending on the intuitions of the inventor rather than on any systematic attempt to understand what features make it a game. Recent work on "simulation games", (Inbar, 1966, Schild, 1966), has been much more oriented towards an understanding of the basic processes involved. Furthermore, Inbar (1967), who has pointed out the almost total neglect of reference to the peer group as a force of influence in the development of the individual child (and the consequent distortions of this neglect), is at present engaged in observations of play situations in an attempt to trace just such influences. In this connection, he has developed the theoretical concept of peer-interaction-density along with appropriate operational indices of the extent and intensity of interactions of the individual child with his peers. The increasing prevalence of the use of play as a diagnostic and therapeutic tool has offered many opportunities for clinical observations of children at play. Nonetheless, understanding the play of a specific child, of typical as against deviant play behavior, would be considerably furthered by the availability of defined norms of such behavior, with which it could be compared. Attempts in this direction have also been made in recent years (Roberts and Sutton-Smith, 1962, Sutton-Smith, 1961): these two investigators have analyzed available anthropological records (The Human Relations Area Files) with the aim of defining the game styles typical to specific cultures and deriving the correlates of such styles in prevalent child training practices. However, since the data on games available in anthropological literature, as the investigators themselves say, are neither systematic nor comprehensive, only little of the basic work of obtaining such information on play behavior had been done thus far.

The aim of our research was to fill this gap to some extent. Our approach assumed that children's play activities reflect their needs and capacities and that through a broad yet intensive analysis of children's games it would be possible to differentiate those characteristics of play behavior that change "with age" from those that remain constant through different age levels; and that an extensive analysis, over a wide population sample and over a considerable time stretch, would enable a definition of the culturally variant aspects of play as against such that do not thus vary. We were, therefore, not concerned with the play behavior of the individual child, but rather with establishing the generally applicable norms of such behavior. In order to arrive at reliable conclusions, which would at the same time be of as general validity as possible, certain conditions had to be fulfilled:

(a) A large and varied population had to be selected for study, (see, The Sample).

(b) Because of the variability in games played during different seasons of the year, the study had to be conducted over an extensive period of time, (see, Observation Periods).

(c) An effective method of observation of play behavior had to be devised and standardized methods for the collection of game descriptions had to be worked out (see, Methods of Observation).

(d) The data had to represent such aspects of play activities, viz. the structures and compositions of play groups, modes of organization in play, and game contents, as were regarded to be central for our aims (see, The Record Sheets and Game Descriptions).

(e) The strategy of analysis of the data obtained had to be flexible enough to allow for the thus far almost complete ignorance of any facts concerning this area of activity (see, Results).

The Summary preceding the Introduction presents in brief the ways and means through which we attempted to attain these aims. The complete Report represents a rather detailed elaboration of this summary.

SAMPLES AND PERIODS OF OBSERVATION

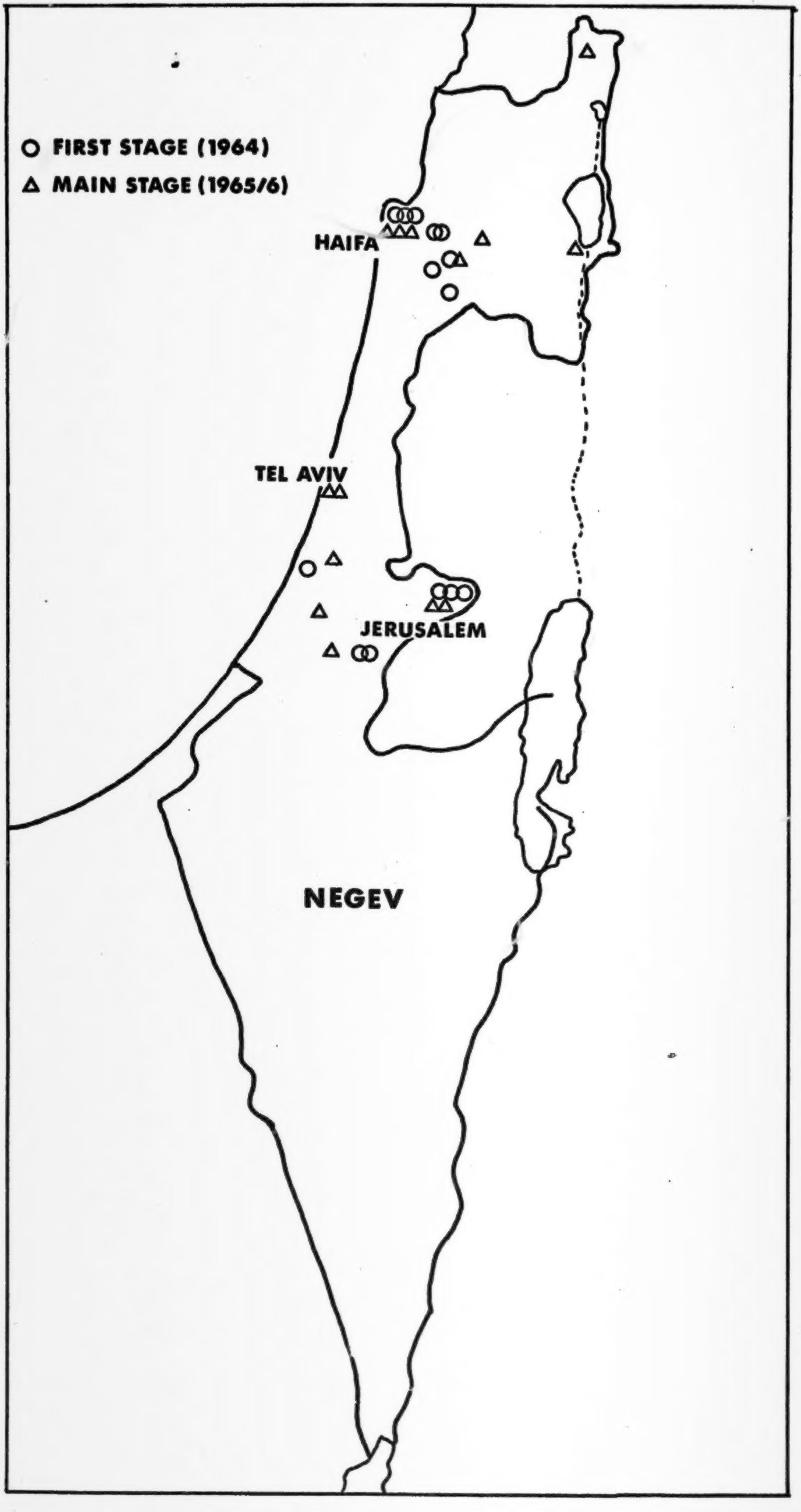
THE SAMPLES

The schools included in the two stages of our research did not overlap, except for one school, in which observations were carried out in both stages.

First Stage

Since this was defined as a preparatory stage, we were interested in selecting a large variety of schools, situated in various parts of Israel so that our study would uncover features of particular interest related to the differences in the school population, their locations and the community structures of which they were a part. We also aimed to test during this stage the practicality of management and supervision of research of the planned scope.

All 14 school selected were State Schools. They varied along the dimensions specified in Table 1 and further explicated below,following Table 2. The geographic distribution of the schools is shown in the attached map. Table 2 gives the number of boys, girls, and all children in each of the 14 schools and the cummulative total of play participants recorded during the complete observation period.



DISTRIBUTION OF SCHOOLS IN THE FIRST STAGE AND MAIN STAGE OF THE INVESTIGATION

Table 1

Basic Dimension Values for Selected Schools --

First Stage

Serial Number of School	Geographic Location	Community Structure	Socio-Economic Level (0-7)	School Achievement Level (40-100)	Coeducational	Orthodox
1	North	Town	4.17	77.0	Yes	No
2	North	Town	2.00	69.5	Yes	No
3	North	Town	1.05	63.0	Yes	No
4	North	Small-Town	3.10	82.0	Yes	No
5	North	Small-Town	3.33	72.5	Yes	No
6	North	New Immigrant Village	0.72	60.5	Yes	Yes
7	North	Village	5.28	74.5	Yes	No
8	North	Kibbutz	5.20	--	Yes	No
9	South	New Immigrant Village*	2.35	70.5	Yes	No
10	South	New Immigrant Village*	0.92	61.5	Yes	Yes
11	South	Kibbutz	3.12	79.0	Yes	Yes
12	South	Town	4.10	77.0	Yes	Yes
13	South	Town	1.52	63.0	No(boys)	Yes
14	South	Town	1.57	62.0	No(girls)	Yes

* The two new immigrant villages (9 and 10) were established after the establishment of the State of Israel in 1948.

Table 2

Number of Children in Each School and Cumulative Totals of Play Participants Recorded During The Complete Observation Period

First Stage

Serial Number of School	N of Children			N of Play Participants		
	Boys	Girls	Total	Boys	Girls	Total
1	218	233	451	417	~~815~~	1232
2	279	257	536	731	853	1584
3	197	215	412	246	333	579
4	125	133	258	928	614	1542
5	224	237	461	933	641	1574
6	103	83	186	498	290	788
7	131	116	247	702	415	1117
8	166	64	230	339	186	525
9	49	36	85	328	265	593
10	157	131	288	266	246	512
11	119	110	229	337	160	497
12	341	315	656	2223	2277	4500
13	299	---	299	1415	---	1415
14	---	371	371	---	2005	2005
Total	2408	2301	4709	9363	9100	18463

a few of the variables presented in Table 1 deserve further comment. Except for the comments on orthodox schools, they are all pertinent to the main stage of the investigation, as well as to the first stage.

Socio-Economic Level

The mean socio-economic level of each school was calculated on the basis of a random sample of 200 children in every school. (In schools with about 200 pupils, the whole population was rated.) The sample taken from each grade was proportional to the size of that grade relative to the total number of children in the school. The following five variables were included in the ratings: father's occupation, parents' educational level, size of family and number of rooms occupied by it, parents' country of origin, and their year of immigration.

A. All occupations were first graded by three judges into categories high, medium and low and were then rated on a 0-2 point scale.

B. Parents' education was similarly rated on a 0-2 point scale.

C. Size of family and number of rooms occupied by it were rated as: 3 or more people per room (0); between 1.1 and 2.9 people per room (1); one person or less per room (2).

Since the children in our kibbutz samples live mostly in children's homes, this variable could not be directly applied to them. Considering living conditions in our kibbutz samples, they were rated in category (1).

D. Parents' countries of origin were divided into Israeli-born or European-American (1), and Oreintal-North-African (0). This division is based on an analysis performed by Bar-Yosef and Padan (1963).

E. Date of immigration was also classified in two categories -- before (1), and (2) after the establishment of the State of Israel (1948). This classification is supported, though indirectly, by Hanoch's (1961) data on the relationship between level of income and year of immigration.

In the final calculation of the socio-economic scores each of the last two categories was given only half the weight given to the other categories. For the socio-economic level (SEL) we used, then, the formula: A + B + C + 1/2 D + 1/2 E. (It should be noted that the last two variables did not apply to the two Arab schools of our main stage sample).

The correlation coefficients shown in Table 3 between the different categories and between each category and the final score, indicate that they all relate to a common index.

Table 3

Correlation Coefficients Between Different Categories of Socio-Economic Level and Between Each Category and the Total SE Score

	SE Score	Country of Origin	Year of Immigration	Family Size/ N Rooms	Parents' Education	Father's Occupation
SE Score	--					
Origin	.90	--				
Immigration	.90	.96	--			
Family/ Rooms	.90	.81	.84	--		
Education	.95	.92	.91	.85	--	
Occupation	.95	.84	.87	.91	.93	--

Level of school achievement

The level of school achievement for each school was the mean of the scores obtained on State School Examinations by all eighth grade pupils of the years during which our investigation took place.

Orthodox schools

Israel has two systems of state schools. The pupils of one system come mostly from orthodox families and more attention is paid to religious instruction in the schools belonging to that system than in the non-orthodox system. But by and large the curricula in both systems are the same.

Main Stage

All 14 schools selected were again, state schools. They varied along the independent variables specified in Table 4. Their precise geographic distribution is shown on the attached map. Table 5 gives the number of boys, girls, and all children in each of the 14 schools of the main stage, separately for the two school-year in which the research was conducted, as well as the cummulative total of play particpants recorded during the complete observation period. Altogether, 56 schools were visited and the 14 selected out of them were chosen in accordance with the following criteria, aimed to maximize the reliability of the interpretation of the observations:

a. All selected schools were co-educational, had all eight grades of primary school, with no less than 200 children attending them.
b. The school playground was open to all children, with no restrictions by grades.
c. The main recess period was the same in all schools and lasted 10 minutes, 9:50 - 10:00 a.m., simultaneously for all grades.
d. There were no restrictions on the activities in which the children could engage within this recess period.

Our insistance that the sample should be as balanced as possible with regard to the socio-economic level of the schools, resulted in the rejection of many schools otherwise suitable. We believe that the final selection was as adequate as could be attained under the mentioned restrictions.

In addition to these restrictions, particular care was taken to avoid systematic differences in the size of the population of the high-level as compared with the low-level schools and in the size and general facilities available in the high-level and low-level school grounds.

Table 4

Basic Dimension-Values of Selected Schools --

Main Stage

Serial Number of School	Geographic Location	Community Structure	Socio-Economic Level (0-8)	School-Achievement Level	Culture
"High"					
1	South	Town	6.11	83.0	Jewish
2	North	Town	5.40	80.0	"
3	Center	Town	5.20	78.0	"
4	North	Village	5.53	74.5	"
5	South	Village	5.41	75.0	"
6	North	Kibbutz*	5.06	76.5	"
7	South	Kibbutz*	4.53	73.5	"
"Low"					
8	North	Town	1.61	64.0	"
9	Center	Town	1.41	66.0	"
10	South	Town	1.28	66.0	"
11	South	New Immigrant Town**	2.83	66.0	"
12	North	New Immigrant Town**	1.11	61.5	"
13	North	Town	0.94	64.0	Arab***
14	North	Town	0.47	61.0	Arab***

---

* The two kibbutz schools of our sample (6 and 7) differ in an important way: The school in the North is a regional day-school of the kibbutzim situated in the area. The school in the South is a local kibbutz school, attended exclusively by children of the kibbutz.

** The two new immigrant towns (11 and 12) are small towns which were established after the establishment of the State of Israel (1948). The Southern town has a population of 16,000 and the Northern town has a population of 15,000, as against the populations of towns 1, 2, and 3 which amount to 190,000, 200,000 and 400,000 respectively.

*** The two Arab schools were not included in our research proposal and support for their investigation was obtained from other sources.

Table 5

Number of Children in Each School During Two Separate School Years and Cumulative Total of Play Participants Recorded During Complete Main Stage Observation Period

Serial Number of School	N of Children						N of Play Participants		
	1964/5			1965/6					
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1	411	377	788	400	369	769	7579	5332	12911
2	226	224	450	201	188	389	3566	3284	6850
3	245	277	522	233	273	506	4819	4128	8951
4	123	116	239	109	118	227	2328	1915	4258
5	216	241	457	284	275	559	5336	5112	10448
6	129	110	239	99	89	188	2808	1630	4553
7	113	109	222	94	88	182	2213	1535	3804
8	139	126	265	117	111	228	2779	2503	5282
9	247	258	505	240	241	481	4028	4218	8246
10	256	250	506	245	281	526	6331	5031	11362
11	321	289	610	311	291	602	3398	3162	6575
12	239	261	500	234	264	498	3221	4219	7443
13	255	200	455	282	207	489	4216	2564	6780
14	284	200	484	345	222	567	5375	2257	7632
Total	3204	3038	6242	3194	3017	6211	57997	46857	104854

OBSERVATION PERIODS

First Stage

The first stage of the observation lasted from about mid-April to the beginning of June, 1964. The observations were carried out during a ten minutes' recess period on Sundays, Tuesdays and Thursdays. 18 observations on the average, were conducted in each school.

This number of observations turned out to be adequate for making the following methodological decisions as to the conduct of the main stage:

1. Some changes in the structure and content of the record sheet were introduced (See The Record Sheet).
2. Changes were also introduced in the method of obtaining game descriptions (See Game Descriptions).
3. It was decided to employ only local teachers and psychology students as observers (See Observers and Coordinators).
4. A local coordinator was added to the team of the observers.
5. It was decided that the contact-man from the center in Jerusalem should be present in every school on each day of observation (See Observers and Coordinators).
6. An analysis of the data revealed that no significant loss of information would be incurred if observations were limited to one observation period per week instead of the original three periods.

Main Stage

It was clear from the start that only an investigation that was carried out throughout at least one calendar year would allow for a complete and unbiased coverage of all the games played during the various seasons, since a significant number of games are played only during certain well defined periods. The period of observation in each school thus lasted for at least one calendar year and up to 18 months, excluding school holidays. The school years during which the research was carried out were 1964/5 and 1965/6.

METHODS OF OBSERVATION

Our unit of observation was the group (of two or more participants) engaged in a particular play activity. The activities recorded ranged from structured games, governed by rules (e.g. varieties of hopscotch, jacks, tag, rope skipping, ball games, tic-tac-toe, dominoes), to unstructured, spontaneous modes of ludic activities, such as "whirling about", "horseback carrying", "flying like aeroplanes", "staging a strike march". On the other hand, the following activities going on during school recess were not recorded in general: individual play, conversation, going to - or coming from - looking at - , eating, writing or reading (unless as part of a game), doing home work, quarrelling, carrying out school duties (e.g., tiding up the classroom). These activities formed the exclusive subjects of observation during the last recording sessions.

We were interested in recording not only the number of games played, but also the number of groups and of children engaged in such games. (Obviously, no direct relationship need exist between these different indices, yet previous research has been primarily based on the first index alone and has indeed led to misleading conclusions, as our analysis will indicate.) In their final form, recordings of each group included the following items of information:

Items of information specific to each group: Number of participants according to grade and sex, their ethnic or religious affiliation, their manner of play (incidence of quarrel), the name of the play activity, physical features of the play surface, the length of the game and the reason for its termination.

Items of general information for each observation day: Name and code number of recorder, name and code of school, grades missing, weather (wind, precipitation, temperature), and information lacking (e.g., because of absence of observer).

In some cases recordings were also made of groups of onlookers, according to their grade and sex. Descriptions of all play activities recorded were also obtained.

It was necessary first of all to develop a workable method by which as nearly as possible all groups engaged in play during the period of observation would be recorded in a standardized manner. Furthermore, it was necessary to keep track of the play activities themselves, both structured and unstructured.

The methods that were worked out were based on the following principles:

(a) Partitioning of the observation area into sections.
(b) Recording information about (i) each play group, and (ii) every play activity, in a standardized manner.
(c) Conducing the recordings by means of trained observers, each responsible for one section within the observation area.
(d) Supervising of the observations through a contact-man from the research center as an integral part of the observation procedure.

The first stage of the investigation proved the method that was devised along these principles to be workable. Some improvements, though, were introduced to the main stage of the investigation. The following is an elaboration of our guiding principles as applied in the field, together with conclusions drawn from the experience gained throughout the investigation.

PARTITIONING OF THE OBSERVATION AREA

The school yard and building(s) were divided into sections, one section to each observer. The observer's task was to record all groups of players within his section. The sections were mapped out so as to ensure that all players could be within the observer's field of vision from any point within his section. The size of the section was determined by the number of children generally playing in it, with the intention to avoid over-populated sections. As far as possible, the area was divided into 'natural' sections (paved surface, lawn), in order to minimize the occurrence of groups playing in more than one section.

Our experience in the preliminary stage proved the suitability in principle of this method of area-division; nevertheless, some additional precautions were introduced in the main stage of the investigation: We found that the maximum number of groups that could be recorded within a section without loss of accuracy in recordings varied between 7 and 11, depending on group size. This was fully taken into consideration in the subdivision of areas in the main stage when, indeed, observers' recordings did not usually exceed this number of groups, and was most commonly between 4 and 5. The first stage also taught us that the area observed could not be subdivided into too small sections if such sections were crowded. Otherwise, there was a risk of overlap in recordings between observers, because of some locomotion during play and because of difficulties in defining the precise borderline between such sections. Rather than introduce this bias into our recordings, we chose to view our method of observation as analogous to that of a surveying camera which would, indeed, miss some very short-term activities occurring in the area surveyed. We also found that certain sections sometimes had to be re-divided: thus, on occasion, a particular section would become unusually crowded with children normally playing in an adjoining section (for example, a fight would attract onto one section many onlookers who would stay on after the fight broke up). Besides these rather sudden concentrations of population there were also some slow shifts in popularity of sections, depending on such factors as changes in the seasons of the year (e.g., seeking shade in the summer) and changes in periodic games (which would require, for example, a different type of play surface, or more, or less, space). It was evident that there had to to be someone whose task it would be to coordinate between observers in cases of shifts in the relative congestion of different sections. It was found that such a coordinator was also needed in order to avoid a certain risk of overlap in recordings between observers: a few games, by their very nature, involve extensive locomotion (e.g., tag). Children playing such games were completely oblivious of our partitions! The observers learned to pay particular attention to such groups and then to compare their recordings with those of other observers who might have recorded the same groups. The coordinator, introduced in the main stage, wandered from section to section throughout the recess period, watching out for such possibilities of overlap and warning observers if any group in their section had already been recorded. (This meant, of course, looking at recordings already made by observers, and gave opportunity for constant supervision.)

It should be noted that these tasks of coordination were in general by no means overdemanding; the occasions for active interference by the coordinator were the exception rather than the rule. The role of coordinator could thus be expanded to include additional functions which will be described in due course.

STANDARDIZING THE RECORDING PROCEDURES

Recording of playgroups

Each observer would position himself in his (or her) section at the beginning of the observation period, so that as nearly as possible all incidents of formation, relevant fluctuation, changes and termination of ludic activities should come to his notice. The observer was equipped with a board with record sheets attached and a pencil with an attached rubber. He would note down, one after the other, the specific items for each group, asking the children for the name of the activity engaged in. There was a special sign marking nameless activities which were given names by the observer; many of these names were standardized in time (see Game Descriptions). When not definitely known to the observer, the children were also asked what grade they belonged to. Naturally, the items 'manner of play', 'length of game' and 'reason for termination' were completed last. In the relatively few cases where the size of the group increased after it had already been recorded, the observer erased the original numbers and recorded the maximal size. Reduction in group size was not recorded, the size recorded thus always being the maximal. (During the first stage increases and decreases in group size during play were recorded. These items were then eliminated in the main stage recordings.) Detailed definitions, with examples of occasions of beginning and termination of play activities, were given to the observers as part of their general instructions.

The appearance of observers in the field was bound to steer at least some children out of their normal activities. Instructions to all observers emphasized that they should let interested children look at the record-sheet during recordings and answer their questions briefly. The stated purpose of the observations was, "to write a book about all games played by children". Indeed, quite a few children showed some interest in the observers at first. But it cannot be emphasized too much that this curiosity subsided surprisingly quickly.

After as few as two or at most four observations, the children were once again more involved in their own activities than in those of the observers. By then everyone knew what the observers were about, they realized that the recordings were anonymous and often volunteered the information required before asked, "so as not to be disturbed".

Extensive checks on the information provided by the children proved it to be reliable at all ages. Information on grade was checked by following some of the informers unobtrusively to their classroom on termination of the recess period. Information on 'name of game' was checked by internal consistency between the different children (within the group or between groups engaged in the same activity), by consistency between various groups of players, by consistency from observation to observation and between schools.

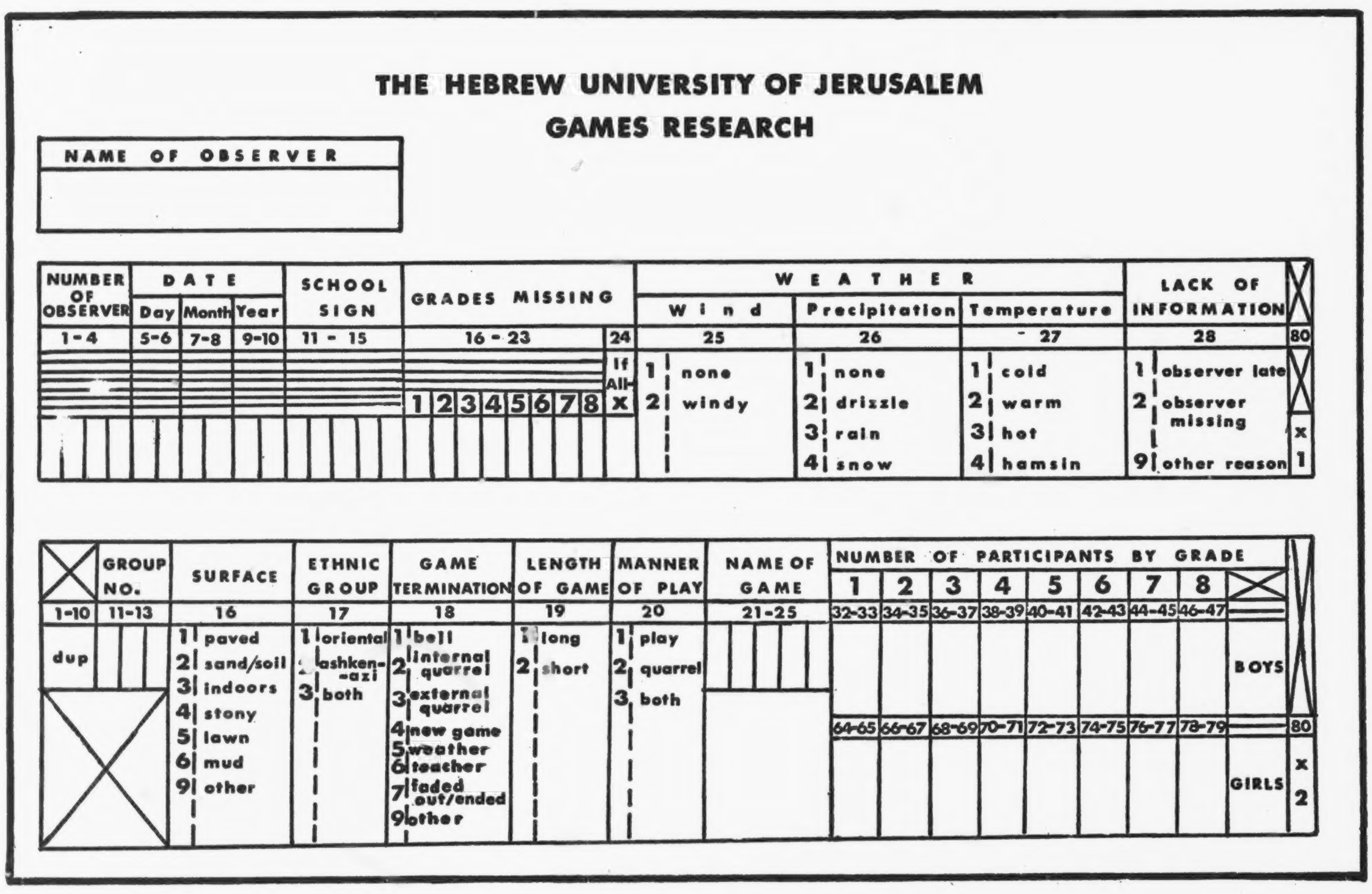
The record sheets

Appendix A reproduces (in translation from Hebrew) the general information sheet, in use during the preliminary stage. AppendixA/1reproduces the translated record-sheet for one group of players, used during the same period. It can be seen that questions in these record sheets refer both to school observations and to observations after school hours. The next page reproduces an English translation of the general information frame and a frame for the information on one group of players, used during the main stage. Another type of record-sheet had space for recording onlookers which were recorded in two schools. This record-sheet is reproduced on page 24. The record-sheets were available in Hebrew and in Arabic, for the respective schools. In AppendixA/2examples are given of the original record-sheets used.

The changes in structure and content of the sheets from the first to the second stage of the investigation were based on the experience gained during the first stage on the basis of which we re-designed the sheets along the following principles: (a) Make recording as simple and easy as possible for the observer, thus securing maximum time for observation proper and demanding minimum time for actual recording.
(b) Structure the record-sheet so as to make it nearly impossible for the observer to overlook items to be recorded.
(c) Tailor the record-sheet so that the results should be transferable directly onto punch cards for computer analysis.

MAIN STAGE RECORD SHEET I

Frame 1: General information
Frame 2: Recordings for one play group



THE HEBREW UNIVERSITY OF JERUSALEM
GAMES RESEARCH

NAME OF OBSERVER

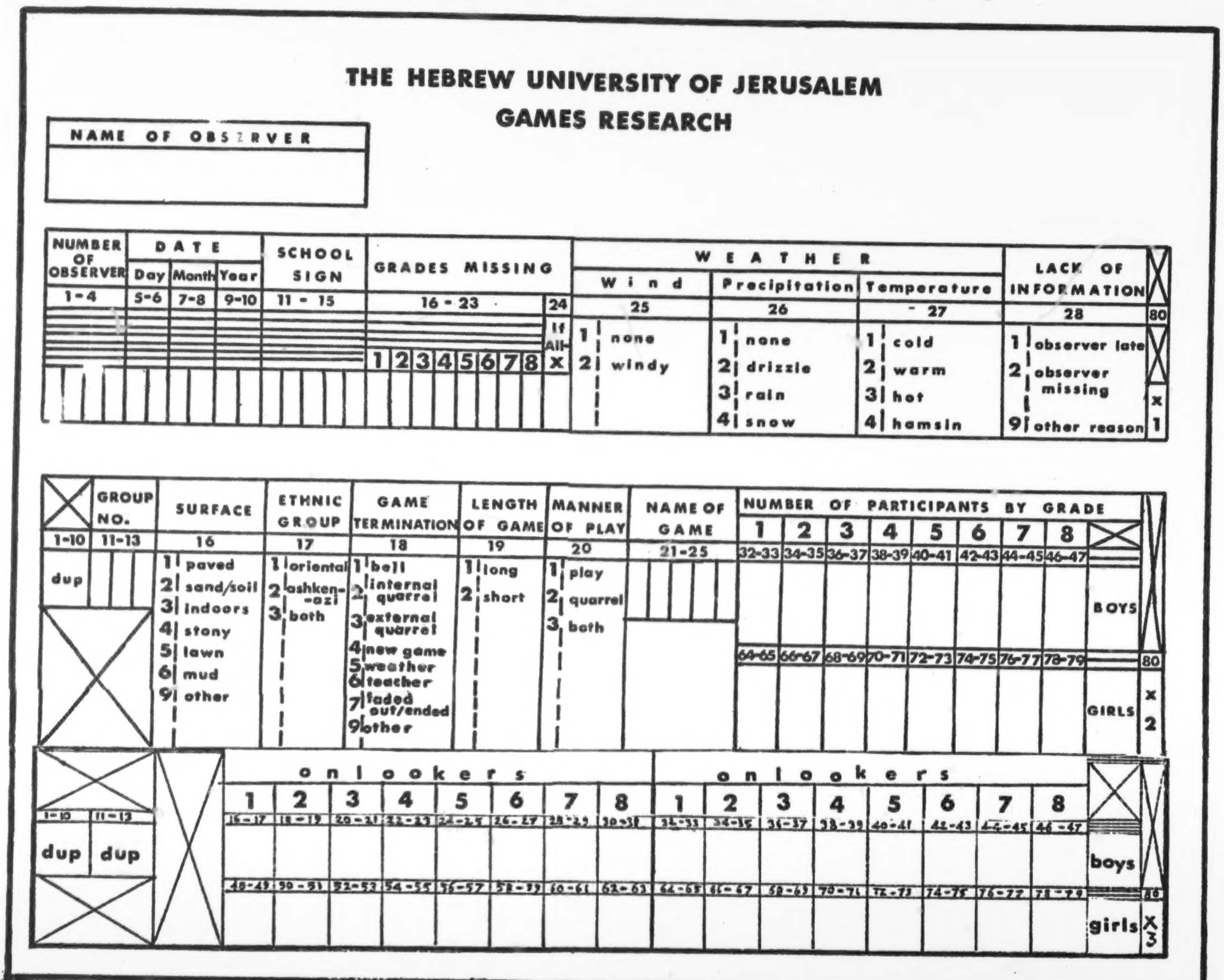
NUMBER OF OBSERVER	DATE Day	DATE Month	DATE Year	SCHOOL SIGN	GRADES MISSING		WEATHER Wind	WEATHER Precipitation	WEATHER Temperature	LACK OF INFORMATION	
1-4	5-6	7-8	9-10	11 - 15	16 - 23	24	25	26	- 27	28	80
					1 2 3 4 5 6 7 8	If All- x	1 none 2 windy	1 none 2 drizzle 3 rain 4 snow	1 cold 2 warm 3 hot 4 hamsin	1 observer late 2 observer missing 9 other reason	x 1

	GROUP NO.	SURFACE	ETHNIC GROUP	GAME TERMINATION	LENGTH OF GAME	MANNER OF PLAY	NAME OF GAME	NUMBER OF PARTICIPANTS BY GRADE 1	2	3	4	5	6	7	8		
1-10	11-13	16	17	18	19	20	21-25	32-33	34-35	36-37	38-39	40-41	42-43	44-45	46-47	BOYS	
dup		1 paved 2 sand/soil 3 indoors 4 stony 5 lawn 6 mud 9 other	1 oriental 2 ashken-azi 3 both	1 bell 2 internal quarrel 3 external quarrel 4 new game 5 weather 6 teacher 7 faded out/ended 9 other	1 long 2 short	1 play 2 quarrel 3 both		64-65	66-67	68-69	70-71	72-73	74-75	76-77	78-79	GIRLS	80 x 2

The number of boy and girl participants by grade were written within the appropriate frames. The name of the game was written where specified. All other characteristics were marked by encircling the appropriate numbers.

MAIN STAGE RECORD SHEET II

Frame 1: General information
Frame 2: Recordings for one play group
Frame 3: Recordings of onlookers on the play group



THE HEBREW UNIVERSITY OF JERUSALEM
GAMES RESEARCH

NAME OF OBSERVER

NUMBER OF OBSERVER	DATE Day	DATE Month	DATE Year	SCHOOL SIGN	GRADES MISSING		WEATHER Wind	WEATHER Precipitation	WEATHER Temperature	LACK OF INFORMATION	
1-4	5-6	7-8	9-10	11 - 15	16 - 23	24	25	26	- 27	28	80
					1 2 3 4 5 6 7 8	If All- x	1 none 2 windy	1 none 2 drizzle 3 rain 4 snow	1 cold 2 warm 3 hot 4 hamsin	1 observer late 2 observer missing 9 other reason	x 1

	GROUP NO.	SURFACE	ETHNIC GROUP	GAME TERMINATION	LENGTH OF GAME	MANNER OF PLAY	NAME OF GAME	NUMBER OF PARTICIPANTS BY GRADE 1	2	3	4	5	6	7	8		
1-10	11-13	16	17	18	19	20	21-25	32-33	34-35	36-37	38-39	40-41	42-43	44-45	46-47	BOYS	
dup		1 paved 2 sand/soil 3 indoors 4 stony 5 lawn 6 mud 9 other	1 oriental 2 ashken-azi 3 both	1 bell 2 internal quarrel 3 external quarrel 4 new game 5 weather 6 teacher 7 faded out/ended 9 other	1 long 2 short	1 play 2 quarrel 3 both		64-65	66-67	68-69	70-71	72-73	74-75	76-77	78-79	GIRLS	80 x 2

		onlookers 1	2	3	4	5	6	7	8	onlookers 1	2	3	4	5	6	7	8		
1-10	11-13	16-17	18-19	20-21	22-23	24-25	26-27	28-29	30-31	32-33	34-35	36-37	38-39	40-41	42-43	44-45	46-47	boys	
dup	dup	48-49	50-51	52-53	54-55	56-57	58-59	60-61	62-63	64-65	66-67	68-69	70-71	72-73	74-75	76-77	78-79	girls	80 X 3

The original record-sheet contained recordings on one group. In its final form the sheet contained a frame for general information and four frames for four groups, or three frames for three groups and an additional two frames for each group's possible onlookers. Thus the observer could conveniently shift back and forth from one group to another while recording.

On the basis of the data gathered in the first stage we were able to give all but two items ('name of game' and 'number of players') the form of two or multiple choice lists. The numerals appearing next to each sub-item were designed to enable direct coding of the relevant information by encircling the appropriate numeral. By comparison with the original record sheets, a number of items of information were added and others were excluded: Three items of general information were added, namely, the observer's code number, grades missing on specific days (because of a school outing, for example) and lack of information (because of an observer's absence, for example). The addition of these items provided the possibility of making appropriate corrections in processing the data. To the information on specific groups two items were added: 'manner of play' and 'reason for termination'. After our preliminary experience it seemed of importance to us to obtain direct information on the first item, since we realized that the game descriptions alone could not always give a correct impression of the spirit in which a particular game was played. A most innocent game may be played very aggressively, whereas a game which requires the use of force, for example, may be played with the greatest apathy. An item on 'manner of play' was therefore added. The item on 'reason for termination' of the play activity was introduced mainly in order to be able to refine our analysis of 'length of game'. An activity could last for five minutes or less ('short') for internal reasons (the game was finished, the children quarreled or got bored with it) but also for external reasons (the bell calling back to class). We found in the analysis of the data obtained in the first stage, that there was a systematic increase with age in the percentage of children persisting at one game for more than five minutes. The additional information provides a basis for a more detailed discussion of the various causes of play termination.

A number of items were excluded from the main stage record-sheet because their occurrence was relatively infrequent and their recording too difficult for the gain in information incurred. These were the items on changes in group size (and related item f) and the item on transfer of children from one group to another (item a). The questions on socio-economic level and religious practice or non-practice within a school were also excluded because they could not be reliably recorded. Through our selection of schools in the main stage, socio-economic level was turned into a major independent variable.

Game descriptions

The information contained in the item 'name of game' was insufficient for purposes of identification, since some play activities that went by the same name were in fact completely different, whereas games differently named were sometimes the same. Further, 'nameless' activities, which were given names by the observers, could be identified by the observers alone. A recorded description of each activity was evidently required.

During the first stage of the investigation all observers were provided with brief questionnaires and instructions for game descriptions and each observer had to describe every activity on first encounter. We realized that in this way we would obtain many overlapping descriptions, but we hoped to select the clearest and most comprehensive of these for our purposes. As a matter of fact, we were swamped with rather poor descriptions, which could not all be checked during the observation phase, and were left with some activities which were named but not described at all.

Consequently descriptions were obtained in a different manner during the main stage of the research:

Immediately following each observation, two coordinators listed all names of games not so far recorded that appeared on the record-sheets collected from the observers. The list was divided according to, (a) structured and/or well known play activities (e.g., 'chocolate hopscotch', 'puppet hopscotch', 'hospital tag'), to be termed 'structured' for the sake of brevity, (b) spontaneous and/or unstructured ludic activities which had no standard name and/or were played in varying quite diverse styles (e.g., 'friendly fights', 'horseback carrying', 'running match'). In case of doubt, the names were always placed in category (b), to be termed 'spontaneous' or 'unstructured'.

The observers themselves described all unstructured activities, if the nature of the activity was not simple and self-evident. The descriptions were usually produced during the recess period following the observation period, except by students and by those teachers who were free to do so immediately on termination of the observations. These descriptions were examined by the coordinators on receipt and returned for clarification whenever necessary. Because of our previous unhappy experience with most observers' descriptions, our questionnaires on spontaneous activities were simple and undemanding. Examples were provided for the kind of description required. Appendix B includes a sample of unstructured game descriptions and answers obtained to the full questionnaires. Further descriptions are contained in the Sample Translations from the Encyclopedia of Games included in the Section under that heading (pp. 58-73).

The bulk of activities was of type (a), i.e., 'structured'. All activities in this category, but also activities originally classified as 'spontaneous' which later appeared to have a standaridized style and to be known amongst the children, were described by the coordinators. The descriptions, based on questionnaires, were obtained through interviews accompanied by demonstrations of children of the school, age group(s) and sex(es) recorded as having played the game. Examples of such descriptions with the attached questionnaire, are also given in Appendix B, and additional descriptions are presented in the translations from the Encyclopedia of Games, pp. 38-57. In addition to these descriptions, highly detailed descriptions were obtained of the main seasonal games. We have developed special codes for describing the moves characteristic of each game. One example of such a code is presented in Appendix C, pp. 246-250. At the center in Jerusalem there were four 'examiners', two male and two female, whose task was to go carefully through the descriptions. Descriptions of ludic activities in which predominantly boys engaged were checked by at least one male examiner, and, mutalis mutandis, for activities by girls. Inadequate descriptions were returned with questions for clarification, or for re-writing.

OBSERVERS AND COORDINATORS

Selection and supervision

In the first stage we intended to make a rough comparison of the relative quality of three types of observers: school-teacher (n=45), 8th grade pupils (n=9) and psychology students (n=15). During that phase, seven supervisors (including the principal investigator) visited all schools on approximately 50% of the observations. The supervisors often came unannounced and these surprise visits enabled us to determine whether unsupervised observations started on time and whether the observers were equipped for the task as required.

While in the field, the supervisor would pass from observer to observer and take note of the comprehensiveness and accuracy of the recordings made. It is likely, of course, that the poor observer made extra efforts while being watched. But the supervisor could still make an indirect judgment of the quality of the work: The observer who made most of his recordings while the supervisor was around, or the one who had hardly started recording in a populated section towards the end of the recess period, was obviously suspect. On occasion, the supervisor made a rough count of number of players in all sections. This was taken as a minimum number, and was compared with the total recorded by observers. Sample inter-judge reliability tests between observer and supervisor were also taken.

We found that the recordings of the pupils were in no discernable way better than those of the teachers, and in fact it even appeared that their motivation for the task was rather unstable. The use of pupils as observers was in any case problematic since they were thus excluded from our sample. We therefore decided not to employ this category of observers in our main stage. For practical reasons, students could only be employed in the city of Jerusalem. In the two Jerusalem schools selected for our sample the same students served as observers. There were 13 students-observers during the main stage, who were selected after a trial period with about double that number.

In order to secure as reliable data as possible in the main stage, we put every effort into the selection and training of observers, getting observers involved in the study and maintaining their interest during the long period of data collection. Two supervisors-coordinators worked with the students and meetings were held to discuss problems connected with the work. A local coordinator from amongst the teacher-observers in each school and a permanent student-representative was present on each observation day in every such school.

Prior to the selection of observers, 56 schools were approached (with the backing of the Israel Ministry of Education) and the headmasters were visited and consulted about the practicability of carrying out the research in their schools. Information on the socio-economic level of the school and other relevant details were gathered. Each of the fourteen schools finally selected for teachers' observations was again visited by the principal investigator or one of her aids. A meeting with a select number of teachers (which was always beyond the number of observers required) was held. In this meeting teachers were given background information on the study and the problems it posed, relating these to the actual school situation. Teachers were told that their school would be included in the study if they were interested in participating. They were warned that the study would extend over a long period of time and that participation would require persistance. A sufficient number of interested collaborators was easily gathered in every school. These were given detailed instructions in print concerning their task. Each observer was provided with a kit with all necessary equipment. The record-sheet was carefully worked through with the observers and a period of supervised training followed. It was understood that the first 6-8 training observations would at the same time constitute a mutual trial period. The 128 observers who finally took part in the research, were mostly those with whom we had started.

We realized from our previous experience that after the first wave of enthusiasm subsided, some effort would have to be put into keeping up the observers' motivation. Observers were paid for their work. We tried to keep alive a genuine interest in the research by such means as letters sent to each teacher, reporting on the progress of work in the various schools and about plans for continuation. The principal investigator visited the schools from time to time during observations and also gave talks related to the subject of the investigation. We tried to encourage something of a team spirit amongst the observers of each school. Also, we were lucky in finding in all schools (but one), a real enthusiast, both able and willing to serve as local coordinator, responsible to the Jerusalem center for the work in his (or her) school. Together with the contact man -- a permanent student-representative from Jerusalem, who was present on each observation day -- the local coordinator served during recess in a semi-supervisory capacity, at the same time also preventing overlap in recordings and organizing repartitioning if necessary. The local coordinator and the Jerusalem contact also saw to it that observers were on time for their task, that all record-sheets were returned after observations, and that all spontaneous games were described by the observers; to them a teacher would turn with any problem connected with the work and general communication with the Jerusalem center was channeled through them. The constant live contact with Jerusalem through the contact man was an important factor in the observers' morale. This representative also transmitted all new instructions from Jerusalem and saw to it that they were carried out. Because he was on the spot there was never a delay in transfer of the newly collected data. The representative also provided running written reports on every observation, in which he specified points of special interest, problems that arose, unusual occurrences at school and other qualitative remarks which make for more complete understanding of such data as ours. Altogether, the local coordinator and the Jerusalem representative proved almost indispensable links in our chain of communication and control necessary to keep work going at the appropriate level.

Reliability of the observations

a. Inter-observer reliability

i. The method of testing reliability. On the basis of our experience during the preliminary stage, we took various measures in order to secure as reliable results as possible. We redesigned our record-sheets, excluding items of doubtful validity, defining others with greater precision and organizing them so as to make the act of recording as standardized and as easy as possible. We also introduced the roles of local coordinator and contact-man between the center and the school. (In the Jerusalem schools, in lieu of the contact-man there was an additional coordinator.) Thereby constant supervision during observations as well as smooth and direct communication with the Jerusalem center was established. Prior to observations proper there was an intensive training period.

To test the degree of reliability actually obtained, inter-judge reliability testing was used. During the test period, two observers were placed in a section normally covered by one observer. Both recorded independently all groups they observed in the complete **section**. In order to preserve during the testing conditions as nearly as possible similar to those of a regular observation, observations were carried out during the usual ten-minute recess period. Further, there was one practice and four test observations, which were divided as follows: In the first three observations, (one 'practice' and two 'test'), one of each pair of observers worked in the section assigned to him during regular observations while the other observer, if at all possible, was taken from a neighbouring section. The third and fourth test observations were carried out in the sections not covered in the first two observations, so that each of a pair who previously observed in an unfamiliar section, now worked in their own section. The pairs of observers were, however, kept constant throughout the test period. This may have made our test not as searching as ideally desirable; but re-pairing of observers would have multiplied the number of observations to an impracticable extent since, as explained below, these observations of necessity caused some interference with the regular school work. On the other hand, it must be noted that familiarity with the section observed increases reliability: the observer learns to recognize both the children and many of the games played, which increases his facility at the task. Since one of each pair of observers always worked in an unfamiliar section, our test scores probably show an artificial decline in reliability and thus understate the accuracy of our procedures. The instructions distributed amongst teachers were worked through with the Jerusalem representative; those distributed amongst students, were worked through with the principal investigator. In explaining the purpose of the task, emphasis was put on the necessity to determine the relative reliability of the various items recorded. This point was found to interest the observers, since they differed in their opinions about the relative reliability of the various items. Thereby the real function of these operations, which was to test the observers' qualifications, was effectively disguised.

There were cases in which some doubts arose as to whether groups recorded by pairs of observers were identical or not. In all such cases the two observers met with one of the coordinators immediately after the observation, in the section observed and compared notes: With their memory still fresh, observers could then specify where exactly within the section each game took place and could also describe and identify some of the participants and thus determine in most cases whether the groups in question were identical or not. (The experienced reader will by now appreciate that our tests occasionally introduced a good amount of disorder in the school schedule and thus could not be indefinitely extended!)

ii. Calculating of test-reliability score. The first step was to calculate the percentage of overlap in groups covered by each pair of observers. The number of all groups recorded by both observers was divided by the sum or the number of groups recorded by each observer. The average percentage 'overlap' in groups (i.e., averaged for each school over all pairs of observers in that school and over four test period) is shown in the third column of Table 6 (pg. 33).

The second step was to calculate the percentage agreement in the items recorded for 'overlapping' groups. There were nine items of information recorded for each group, for which the average percentage of agreement was computed. It will be realized, of course, that for each of the items of information the observer had a choice of possible answers depending on the subject (e.g., for 'name of game', there was a large number of possibilities; for 'length of game' the choice was only binary: 'short' for up to five minutes and 'long' for over five minutes). The percentages of observations that were in agreement on each item (for each school over all pairs of observers in that school and over the four test periods),

Table 6: Number of Groups Recorded During Inter Judge Reliability Testing, Mean Percent of Overlap Between Pairs of Observers in Groups Recorded and Mean Percent Agreement on Items of Overlapping Groups.

School	Number of Groups		Mean Percent of Overlap in Groups*	Mean Percent Agreement on Nine Items of Overlapping Groups									Mean Percent Agreement on All Ten Items
	total	overlapping		boys/girls	name of game	number of players*	grade*	manner of play	length of play	termination of play*	ethnic (or religious affiliation*	play surface*	
North:													
Town-Low	39	30	82.1	100	96.9	84.4	90.5	96.9	93.8	93.8	81.3	100	91.7
Town-High	114	88	77.1	96.6	97.7	85.2	89.8	65.8	83.0	87.5	68.2	97.7	82.5
Village	36	31	86.1	100	93.5	61.3	87.1	93.5	100	100	100	87.1	90.8
Kibbutz	38	37	97.4	94.6	97.3	94.6	91.9	94.6	83.8	89.2	-	86.5	92.2
Development Town	95	72	75.7	98.6	90.3	84.7	90.3	100	65.3	83.3	94.4	86.1	86.5
Arab Village	124	100	80.6	99.0	100	94.0	99.0	91.0	83.0	81.0	-	75.0	89.2
Arab Town	107	86	90.4	96.5	100	97.7	96.5	100	76.7	67.4	83.7	100	90.8
Center:													
Town-Low	40	34	85.0	100	100	82.3	88.2	94.1	94.1	85.2	79.4	94.1	90.2
Town-High	85	58	68.2	98.3	98.3	79.3	94.8	93.1	93.1	96.6	41.4	81.0	84.4
South:													
Town-Low													
Town-High	161	116	72.1	100	94.8	78.5	93.1	92.2	94.0	87.1	82.8	94.0	88.8
Village	98	81	82.6	96.3	95.1	87.7	92.6	96.3	87.7	91.4	72.8	85.2	88.7
Kibbutz	22	21	95.5	100	95.3	66.7	95.2	76.2	90.5	81.0	71.4	66.7	86.8
Development Town	109	82	75.2	100	98.7	90.2	96.3	97.5	90.0	85.3	73.1	85.3	89.1
	1068	838											
Mean Percent over 14 Schools			78.5	98.3	96.9	85.8	93.8	86.4	85.8	85.6	83.1	89.2	88.3

* In all cases, the strictest definition of overlap was applied: only complete overlap was considered as "agreement" between observers.

are shown in Table 6. The percentage of incorrect observations is obviously approximately about half that of the percentage of observations that are in disagreement. There is a 4 to 8 percent average error in recording of all 10 items of information in the various schools. In ranking these scores across the schools no relationship can be discerned between socio-economic level, type of settlement or culture of the schools and the reliability of the recordings.

b. Correlations between observers' recordings and children's reports

In three Jerusalem schools (the South-Coeducational school of the first stage -- of Medium-level -- and the High-level and Low-level South-Schools of the main stage), reliability was also tested in the following manner: the children in all grades were requested, upon returning into class after one of the recess periods in which observations were conducted, to report in writing which game(s) they had played during the recent recess period. The lower grades were aided in writing their responses. Table 7 gives the correlation coefficients between the number of players who were recorded as participants in specific games and the number of children reported to have played these games, by grade and sex. The correlation coefficients were calculated separately for each school and for the lower and upper school grades.

Table 7

Correlation Coefficients Between the Number of Players Who Were Recorded as Participants in Specific Games and the Number of Children Reported to have Played These Games in Three Schools (N of Schools; High, Boys = 274, Girls = 252 Medium, Boys: 293, Girls: 275, Low, Boys: 186, Girls: 145.)

	School Level								
Grades	High			Medium@			Low		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
1-4	*.43	**.60	**.72	**.90	**.93	**.97	**.71	*.57	**.71
5-8	.60	.29	.38	**.99	**.96	**.98	*.49	*.86	**.67
Significance of Difference	N.S.	N.S.	p<.06	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

* significant at .05 level ** significant at .01 level

@ observations in this school were conducted during the first stage and again, during the corresponding period one year later, with the same record sheets used in the other two schools.

It may be seen that with the exception of the upper grades in one school, all correlations are significant.

However, when rank ordering the games, no significant correlations were obtained between observers' recordings and children's reports. Sutton-Smith (1965) has also argued, on the basis of comparisons made between actual play participation and reports on such participation, that there was no correspondence between them, in particular in the case of boys who, according to his interpretation, may assert an interest in "masculine" games even if they do not pursue such games actively, whereas girls appear to enjoy greater sex role flexibility in this respect. An indirect opportunity for testing this interpretation lies in an additional section of our questionnaire, in which each child was asked to specify who he (or she) played with. The relevant comparisons are of the extent of boys' and girls' mutual mention as playmates. However, this comparison has not as yet been carried out.

An additional questionnaire, also relevant in this connection, was given to children in grades 4 to 8 in five different schools, after observations were terminated. In this questionnaire, a list of all major games observed in the schools was given, and the children were asked to check the games they had played at recess during the year. In our analysis thus far, of results obtained from one school, we compared the proportion of boys who checked exclusively- and predominantly- girls' games (see pp. 149-150 for a precise definition) and of girls who checked exclusively- and predominantly- boys' games with the corresponding proportions obtained in actual observations. Interestingly enough, we have found in the case both of girls and of boys, a greater proportion of declared participation than that actually observed. In other words, it appears that children checked even games which they had rarely played (and were thus unlikely to have been recorded playing them, since our observations were conducted only once per week). However, whereas the difference between the declared and observed participation (in favour of the former) averaged only 10 percent for girls with regard to boys' games, this difference averaged 17 percent for boys, with regard to girls' games! This finding appears contrary to that of Sutton-Smith, but its meaning must be understood with reference to our records which have revealed (p. 150) that the percent of boys who played predominantly girls' games is far higher than the percent of girls who play predominantly boys' games. This is, indeed, indicated by the answers obtained in the questionnaire.

C. Internal consistencies in recordings and consistencies between schools

In an important sense, the data speaks for itself. On specific items recorded about each play group compare, for example, Figure 46 with Figure 47 (pp. 171 and 172). The shape of the curve of the graph showing the percentage of players by age who played "long games" corresponds almost completely with the shape of the curve which shows the major reason for play termination, viz. the school bell. That is, if a game was "long", the probability that it would be terminated by the bell increased. Other such consistencies can be found between the percent of boys as against girls who played long games (Figure 42, p. 167) and the respective percentages whose play was terminated through its natural end or by fading out (Figures 43, 44, pp. 168, 199).

Besides these and other correspondences between items independently recorded, (the interested reader may make additional comparisons between the Figures presented in the Results), there are many similarities in trends over age, and sex, between the high-level and the low-level schools. This can be seen repeatedly in the Results and need not be specified here.

RESULTS

We think that we can state without reservation, that all the major tasks which we have set ourselves before embarking on our four year project, have been fully carried out. We had, first of all, to reach the facts about play behavior in groups. For this purpose an Encyclopedia of Games has been compiled and information has been gathered which we consider to be of primary importance for the understanding of the behavior of children in playgroups. Our approach to the analysis of the data was primarily descriptive-analytic. Rather like the comparative ethologist, we intended first to reveal those games, play behaviors and modes of organization in playgroups, which turned out to be characteristic of a particular age, sex, socio-economic strata, community structure and culture -- with the aim of defining their "species specific" attributes, as well as attributes they possess in common. The deeper theoretical analysis of the data is the task that follows, and in this task we shall be engaged in the 3-4 years ahead.

A. ENCYCLOPEDIA OF GAMES

An Encyclopedia of Games has been compiled which, to the best of our knowledge, is the most comprehensive of its kind. Some 5,000 descriptions of games and their variants have been systematically categorized and encoded first, as to their structuredness and then for structured and unstructured games separately, in separate alphabetical order, along the following dimensions:

1. Name of game, with cross references to all other names of the same game, as well as specifications of variation in the same game as played in different localities.
2. School in which the game was observed.
3. Age range of players.
4. Sex of players.
5. Objects used.

In addition, the games played in two particular schools have been categorized at greater depth, along a much larger number of further dimensions such as, boys/girls ratio, detailed structure of the playgroups, use of objects or play materials, the existence of outcomes such as winning and whether winning is connected with material gain.

We are convinced that this large amount of carefully collected and categorized data will be of greatest importance to researchers in a variety of fields such as child psychology, small group sociology, social anthropology and folklore. As a matter of fact, the Encyclopedia is already being used in research conducted in the Sociology Department of the Hebrew University. The principal investigator herself is continuing the content analysis of the game descriptions. It already is apparent that significant information will be obtained from this analysis.

Attached to this Report is one copy of Vol. 1 and 2 of the 28 Volumes of the Encyclopedia of Games. A sample translation from Hebrew into English, of some of the contents of these volumes are presented in the following pages, 38-73.

SAMPLE TRANSLATIONS FROM

VOLUMES I and II

of

THE ENCYCLOPEDIA OF GAMES

Vol. I: Structured Games, pp. 38-57

Vol. II: Unstructured Games, pp. 58-73

Name of the game *Apricot pit hole ("Aju Bor" or "Gogoim")*

Name of Recorder *Y.B.* Location *Jerusalem (Town, Low)*

Grade of players *1st to 7th* Participants *boys*

Objects used *apricot pits* Date *13.11.1965*

Game Procedure

A hole of approximately 15 cms. in radius is dug and a line is drawn at a distance of about 2 meters from this hole. From this line the players are required to throw apricot pits toward the hole. Each participant starts with an equal amount of apricot pits, the number of which is decided at the outset of each round of the game. The two opponents then decide who goes on the first round, on the basis of "Anchook". The player who wins the right to go first receives his opponent's apricot pits as well as his own and throws them, one at a time in the direction of the hole with the aim of dropping them into the hole. After he throws them all, the number of pits in the hole is counted. If it turns out to be an even number, then the thrower wins all the pits, including those that have jumped out of the hole. Thus he gets his own pits back as well as those of his opponent. The sole determining factor is the number of pits in the hole; the number outside the hole is inconsequential. If the number of pits in the hole turns out to be an odd number then his opponent wins all the pits.

No matter what the outcome is the turn always passes to the player who has not thrown on the previous round. If this player is afraid that he will lose on his throw he may pass. In this instance, however, the first player must then agree to throw on two successive turns.

The winner of the game is the one who wins all the apricot pits of his opponent.

Name of the game *Dad and Mom*

Number of players *4-10* Participants *boys and girls*

Grade of players *4th* Location *Jerusalem (Town, Low)*

Name of Recorder *Z.U.* Date *4.3.1965*

Game Procedure:

At the outset of the game a "mom" (who also plays the "dad") is chosen and the remaining players take the role of the "children". The different game roles are filled either arbitrarily or according to "choosing" in the form of "odd man out" or "stone, paper and scissors". In the same fashion each child's turn in line is determined.

A line is drawn and the "children" stand behind it in a horizontal row. The player who is chosen to be the "mom" stands facing the row of children at a distance of about 10 meters. The purpose of the game is to try and reach the "mom" and exchange places with her. The "child" who reaches the "mom" first exchanges places with her, and becomes the new "mom". A "child" reaches the "mom" in the following manner: One of the "children" asks: "Mom, mom what's the time?" and the "mom" replies: "Three o'clock" (or any other number that strikes "her" fancy). The child who asked the question then advances three steps forward trying all the while to take giant strides in order to reach the "mom" first. The remaining children also ask according to their turn in line (as decided at the start of the game) and similarly they advance according to the time that is given as an answer (e.g. if the answer is "four o'clock" they advance four steps, if "five o'clock" then they advance five steps, etc.) One can also ask "Dad, dad what's the time?" In this case, however, the "child" who asks has to retreat backwards according to the number that the "dad" gives as an answer. Generally, however, the children always try to advance, but the "mom" (who also plays the role of "dad") can delay or prevent their progress. For example, to the child who asks "Mom, mom what's the time?" - the "mom" can reply "Dad, three o'clock" and in these circumstances the child has to retreat three steps backwards (or according to any other number which is given as an answer).

The children claim that the person who plays the role of "mom" wants to be exchanged eventutally because he gets "fed up with being the mom". Thus, the "mom" does her best to let the other children reach her and exchange roles with her. It should be noted that a "child" can exchange places with the "mom" even when he reaches her in a smaller number of steps than that determined by the "mom's" answer (for example when he reaches her on the second step even though the "mom" answered "four o'clock").

When someone exchanges roles with "mom" the game once again starts from the beginning. There is no defined end to the game.

Name of the game *Individual Tag* Date *13.2.1967*

Name of Recorder *A.R.* Location *Jerusalem (Town, Low)*

Grade of players *1st to 8th* No. of players *2-6*

Objects used *none* Participants *boys and girls*

Game Procedure

The "tagger" is chosen by a form of "odd man out"("from many a few go out"). He then declares "Ten for all" and the rest of the players flee, (in actuality the "tagger" rarely counts till ten). The "tagger" then tries to catch and tag one of the fleeing children and when he succeeds in doing so the "tagged" child becomes the new "tagger" and again declares "Ten for all". Thus the above process is repeated with the previous "tagger" now fleeing with the rest of the children. There is no formal declaration of a new "tagger"; rather, the declaration "Ten for all" suffices so that no player can subsequently argue that he didn't know of the exchange of "taggers".

In this tag game the players usually try to"drive the tagger crazy" by running in front of him and turning sharply sideways, or by running in a zig-zag fashion. A fleeing player who falls in the process of escaping can't be caught by the "tagger". Instead, the "tagger" must give the fallen player an opportunity to get up and begin to run and only then can he once again pursue him.

A player who wishes to rest or stop participating temporarily may declare "Pus" ("Time!") in which case the "tagger has no right to tag him. However, a player must not yell "Pus" when the "tagger" is in hot pursuit of him and in such a case can only do so if he falls while being chased.

In this tag game there is no defined end.

Name of the game Heads No. of players 2, sometimes 4 or 6

Name of Recorder Y.B. Location Jerusalem (Town, Low)

Grade of players 4th to 8th Participants boys

Objects used ball, 4 stones Date 17.11.1965

Game Procedure (when played by two)

The players build two goals with stones at a distance of approximately 8 meters apart. They decide who goes first by "odds or evens" or by "jumping" (in the latter case they throw the ball up in the air between them and the one who jumps and touches it first goes first).

The player who goes first stands in his goal area and butts the ball with his head in the direction of his opponent's goal. He does this by throwing the ball in the air and hitting it firmly with his head. If he succeeds in scoring a goal he wins a point and the ball is then given over to his opponent. If the "goalie" catches or stops the ball or if it is butted off target and rolls outside the goal area, then the ball is given over to the defender without any points being lost.

When the "goalie" succeeds in stopping the butt of the attacking player with his head then the "goalie" receives a "pendal" i.e. the right to butt the ball from mid field while the previously attacking player must now defend his goal. However, if the defendant now returns the butted ball with a butt of his own then the two players both receive "pendals" or the two "pendals" cancel each other out. There is no definite rule, however, in the latter instance and the procedure adopted depends on the decision of the two players.

One always plays for points. Generally it takes either 6 or 12 points to win a game. When either side gains the required number of points the game is over.

Game Procedure *(when there are teams of two or three players)*

In these circumstances the rules resemble those of the game played with two players only, except that it is now possible and permissible for the team members to "pass" the ball between themselves from head to head. Only one butt at a time, however, is allowed to each player. The players spread out along the playing field in order to be near the opponent's goal on the final butt.

Name of the game *New Donkey*

Date *24.11.1965*

Name of Recorder *Y.B.*

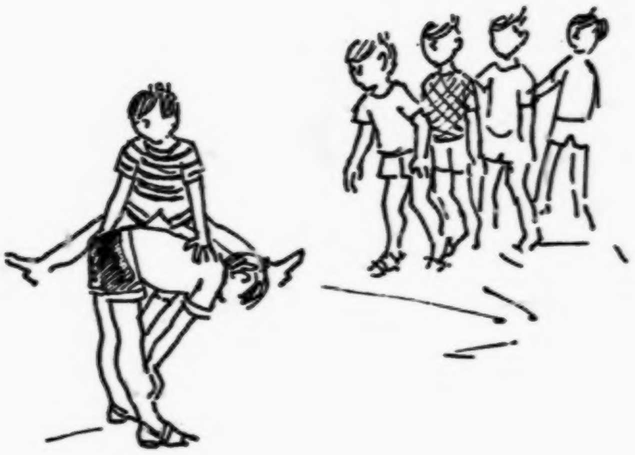
Location *Jerusalem (Town, Low)*

Number of players *4-12*

Participants *boys and girls*

Grades of players *4th to 8th*

Objects used *none*



Game Procedure

The division of game roles ("jumpers" and "donkey"), is decided by a form of "odd man out" called "from many a few go out". The person who goes out first "leads" the rest of the players in jumping, and the order of jumping of the remaining players is determined by the order they went out in the original "odd man out". The last person to go out becomes the unfortunate "donkey". This "donkey" stands a distance from the group of jumpers, bends his back forward and grabs his knees with the palms of his hands; his knees are straight and his legs spread out, (see illustration). The jump itself is performed as follows: the players hop and jump over the back of the "donkey" with spread legs and aided by the palms of the hands which are supported on the "donkey's" back. Usually the jump is accompanied by a certain call (see below). The game is generally played on a flat area. However, the area from which the players hop is sometimes elevated by a rock or a box, thus making the jumping easier.

The first round of the game is always the same: the players jump one after the other over the "donkey's" back and cry out "New Donkey!" while jumping. A player who forgets to cry out "New Donkey!" is immediately disqualified and has to exchange places with the "donkey". At the start of each of the following rounds of jumping the "lead" determines the specific activities that the rest of the players in line must perform and the other jumpers must imitate his actions in full. The "lead" demonstrates the different variations which strike his fancy. However, most of the variations introduced are not, in fact, true innovations as they tend to appear over and over whenever the game is being played.

The jump with spread legs, itself doesn't change. The variations introduced are in the different movements of the palms of the hands and/or the fingers, in the cries that accompany the jump, and often in the style of sliding off the "donkey". The following are examples of some of the more popular variations:

(1) The "lead" jumps over the "donkey" and declares: "A Sherman Tank falls from the sky". He slides on the back of the "donkey" while jumping (trying to impress the poor "donkey" with the heaviness of the "tank").

(2) The "lead" jumps over the "donkey" and declares: "Forks" at the same time pinching the "donkey" in the back with his fingers.

(3) The "lead" jumps over the "donkey", declaring: "knives" and makes a cutting motion with his hands. (The palms of the hands are stretched out and parallel to each other and are laid down vertically on the back of the "donkey").

(4) "There are three things in the food store"... see separate game description. (This variant is also played as a game in its own right.)

As already noted the remaining "jumpers" must imitate the "lead" completely. A player who errs in the execution of the appropriate hand motion or the correct declaration is immediately disqualified and must take the role of "donkey". This exchange of roles incidentally, is called "rescuing the donkey".

After a jump, a player is always required to return to his place in line by way of the back of the "donkey" and not by way of his head. If a player returns by way of the head the "donkey" calls out "Stop" and in so doing rescues himself. The player who was "stopped" must then exchange places with the "donkey" and himself become the poor old "donkey". However, if this player manages to say "Excuse me!" before the "donkey" says "Stop" then he is "immunized" and does not have to take the place of the "donkey".

There is no defined end to the game.

Name of the game *"On the Mark"*

Name of Recorder *T.B.* Location *Jerusalem (Town, High)*

Grade of players *6th to 8th* Participants *Boys and Girls*

Objects used *Paper and Pencils* Date *22.8.65*

Game Procedure

Each player has a pencil and a piece of paper. Each player picks a number with 4 figures (e.g. 1275) and writes this number on his piece of paper. (It is forbidden, however, to construct a number in which a particular figure appears twice, e.g. 2321, but it is permissable to construct a number in which the first figure is "0").

The aim of each player is to guess by means of questions the number his opponent chose. The game is conducted in the following manner: Suppose that player A chooses the number 3915. Player B then presents player A with a four figure number and asks him if that is the number which he picked. Let us suppose that player B presents as his question the number 3890. We see that player B has been correct in regards to the figure "3" both with respect to the particular figure and its place. Whereas in regards to the figure "9" he has guessed correctly as to this figure itself, but incorrectly with regard to its place in the number. With respect to the two other figures, his guess is incorrect. The answer of player A will be a bull's eye hit. Bull's eye implies that his guess has been correct on a particular number both as to the number and its place. Hit implies a correct guess, but only as to the number itself.

Player B writes down beside the number that he presented as his question (3890) in the following manner: "+" sign of Bull's eye; "-" sign of hit. He knows now that the number 3890 includes two figures that are in the original number chosen by player A and that he has also succeeded in guessing the place of one of them. His goal is now to discover what these figures are, what the two remaining figures are, and what the order of the figures is in the whole number.

The turn now passes to player A who asks player B about the number he (player B) has chosen. He does this in the same fashion as described above. The winner of the game is the player who first succeeds in discovering the number of his opponent.

Players have different techniques and methods in planning strategies of questions, for example: to try out successively all possible numbers in a given place. When it seems to a player that his opponent has erred in the answer to the question which has been presented him, i.e.: gives him incorrect information on a particular figure, he is permitted to ask his opponent to review with him the questions and answers from the beginning. This inspection is possible because on the paper of each player are listed both the questions and answers relating to his own number and that of his opponent. The paper on which the questions and answers appear is usually divided as follows:

The number chosen by me:

A. The figure my opponent has guessed	B. The answers I have given to his guesses

The number chosen by my opponent:

A. The guesses I have made	B. The answers my opponent has given my guesses

If after such inspection it is discovered that the guesser has been led astray by his opponent's answers, then the missled player is permitted to request the stopping of the game and starting over. However, if the guesser himself has been mistaken in writing down the answers given him, the game can only be stopped by mutual agreement. The game is continued, however, if such an agreement is not reached.

It is also possible to play the game with more than two participants. In this instance, every player must guess what is the number of the opponent on his right and in turn, the number which he chooses must be guessed by the player sitting on his left. In this instance, the winner is the participant who succeeds in guessing the correct number in the minimal number of moves.

There is a certain variation of this game in which the order of guessing is not maintained, and every player can present his guess as soon as it comes to mind. However, this variation is rarely played.

Name of the game *Paper, stone, or scissors (or: Anchook)*

Name of Recorder *E.B.; Y.B.* **Location** *Jerusalem (Town, Low*

Number of players *2* **Participants** *boys and girls*

Objects used *stakes: marbles, bottle tops, apricot pits or other stakes*

Date *28.11.1965; 14.11.1966*

Game Procedure

The respective players first hide their hands behind their backs, then simultaneously shout "Anchook" and thrust one hand forward. It is possible to bring out "a stone" (the fist folded), "paper" (the palm of the hand open), or "scissors" (the index and middle fingers spread out and the rest of the fingers folded).

If one player brings out "paper" and his opponent "a stone" then "paper wraps the stone" and the "owner" of the "paper" wins.

If one player brings out a "stone" and his opponent "scissors", then "the stone breaks scissors" and the "owner" of the "stone" wins.

If one player brings out "scissors" and his opponent "paper", then "scissors cut paper" and the "owner" of the "scissor" wins.

This game is often used to determine one's turn in line in other games, but it is also played as a game in itself. In the latter instance the players decide at the outset what the "stakes" will be (marbles, bottle tops, apricot pits,) and also for "how much they will play" on each round. They continue to play until one of them loses all his "possessions", or until they decide to stop playing.

Name of the game *Rescue Tag*

Name of Recorder *Y.B.; A.G.* Location *Jerusalem (Town, Low)*

Grade of players *1st to 7th* Number of players *5-30*

Participants *boys and girls* Objects used *none*

Date *24.1.1965; 28.11.1966*

Game Procedure

In rescue tag two "taggers" are selected at the beginning of the game by some kind of lottery. The rest of the players then flee while the "taggers" count to ten and then they begin to chase after the fleeing players. When a player is tagged he is brought to a concentration area and one of the "taggers" must guard him while the remaining "taggee(s)" continues to chase after the other players.

It is possible to rescue a "taggee" by approaching him and touching him but only if the rescuing party himself avoids being tagged by the "guard". The "guard" himself is required to stand at a distance of at least 3 meters from the captured player. If there are a number of "taggees", they stand in a chain-like fashion, hand in hand, and thus if someone touches one of the extreme players he thereby rescues everyone, (the children say that "there is a current" in the chain!).

If only one player remains untagged then both "taggers" are required to chase after him thus leaving the remaining "taggees" unguarded. If this player is also tagged then the process starts anew, i.e., a lottery is conducted and two new "taggers" are selected from all the "taggees".

A slightly different version of the game is called "giant tag". In this game there are a great number of players (up to 30). Three or four "taggers" are chosen by lottery with the number usually relative to the total number of players. The game itself proceeds as above except that the division of "chasers" and "guards" is not fixed, but rather determined by the "taggers's" fancy. In this version of the game it is possible, as in that described above, to rescue a "taggee" by touching him, and similarly a group of "taggees" who stand in a chain may be rescued by only one of them being touched.

Name of the game *Seven stones* No. of players *6-10*

Name of Recorder *Y.B.* Location *Jerusalem (Town, Low)*

Grade of the players *1st to 5th* Participants *boys and girls*

Objects used *ball, 7 flat stones* Date *28.4.1968*

Game Procedure

Two players are selected as team captains by general consensus. The captains then decide who will have first choice of players by "odds or evens" or by "Anchook". The winner then begins to choose first and then the captains choose alternately until two teams are chosen up. The captains once again decide either by "Anchook" or "odds or evens" who will get the ball first (the winning team, team A, gets the ball first).

Seven flat stones are then arranged in a pile, one on top of the other. Team A stands at a distance of about 3 to 4 meters from this pile; the internal order of the team being decided by its members. Team B arranges itself on the other side of the pile with the players more or less spread out (see illustration).

The player selected by team A to go first, now throws the ball in the direction of the pile of stones and tries to hit it while at the same time toppling as few stones as possible. If he doesn't score a hit then the turn passes to the player who has been selected to go second. If none of the players succeed in hitting the pile then the teams exchange roles. A team whose player successfully hits the pile immediately scatters in all directions. At the same time the players of team B attempt to grab the ball in order to try to hit the players of team A with it. Now, the members of team A try to return to rearrange the toppled pile of stones. Thus they in fact "tempt" the members of team B to throw the ball at them in the hope that they will avoid being hit and that the members of team B will then have to run after the ball to re-catch it. While team B is in hot pursuit of the ball team A can more easily reach the pile and "rebuild the ruins". However, if a player of team A is hit he is disqualified fro the game, and if team B succeeds in disqualifying all the members of team A then the teams exchange roles. If, on the other hand, a player of team A successfully arranges the pile without being hit he wins a point for his team and also "rescues" his friends who have been disqualified.

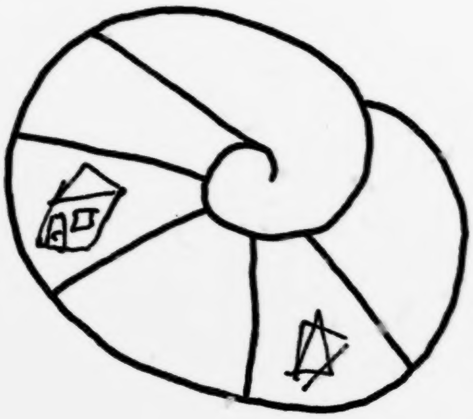
The number of points required to win the game is usually either six or twelve. This is decided upon at the outset of the game, and the winner is the team who reaches the defined score first.

Name of the game *Snail Hop-Scotch* **Date** *24.2.1965*

Name of Recorder *Z.U.* **Location** *Jerusalem (Town, Low)*

Number of players *2-10* **Participants** *girls*

Grades of players *1st to 5th* **Objects used**



Game Procedure

The respective turns in line are determined by forms of "odd man out" ("From three one goes out" or "From many one goes out"). The players draw on a floor or on the road a form of snail that is divided into 6-8 parts (see illustration).

The first player in line hops from "square" to "square" avoiding stepping on lines or falling, until she reaches the last "square". This "square" is the "resting place and here it is permissible to rest on both legs as long as one wishes. On the way back (once again on one leg) the child stops in one of the squares (according to her fancy) and draws a picture: usually a picture of a "house" or a "star of David" (see illustration). Once a child has painted in a "square", this "square" becomes the "house" of that player. A player who acquires five "houses" becomes the winner of the game and stops playing. The rest of the players continue to play, however, until all the squares are filled. If no player acquires five "houses" then the winner of the game is the one who has more "houses" than any other player, once all "squares" have been occupied.

Each player, when her turn comes up, is required to ask the other players if they will permit her to enter their "houses". If they agree then she must enter their "houses" or she is automatically disqualified and it is the next player's turn. If they refuse her entrance she must skip over their "houses", and if she enters despite their refusal, she is also disqualified.

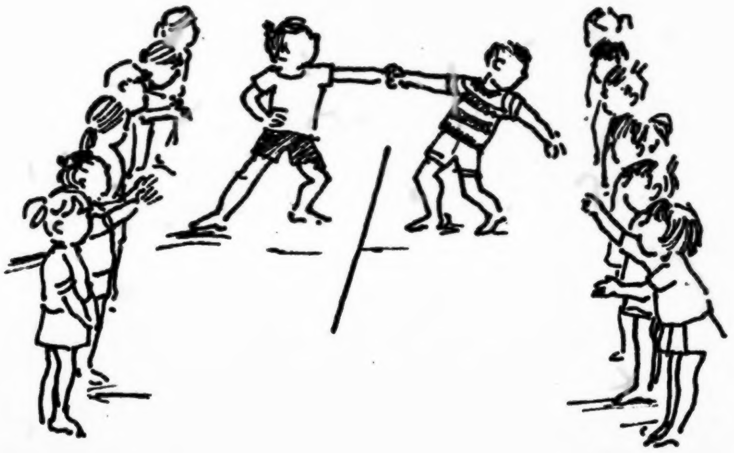
It will be realized that when an opponent accumulates a number of adjoining "houses", it is very difficult to jump over them in one leap and hence the number of "misses" increases. Stepping on a line or falling is also considered to be a "miss", which results in loss of one's turn. As a general rule the players try first to acquire the last square at the back because that is the square in which one "rests" and possessing it thus means having control over the other participants's chance of "resting".

Name of the game *"We are going to fight with you"* **Date** *21.11.1966*

Name of Recorder *A.G.* **Location** *Jerusalem (Low-Town School)*

Number of players *5-20* **Participants** *boys and girls*

Grades of players *5th to 6th* **Objects used** *none*



Game Procedure:

The participants choose two team captains at the outset and the captains in turn choose up two teams. The two teams stand at a certain distance apart facing each other. Between them a line parallel to the two opposing teams is drawn. One player then goes out from each team with his back towards his team-mates and meets his opponent at the line. Each of the two players then clasps the other with the palms of his hands and tries to pull his opponent forward over the center line. (It should be noted that the players have the option of fighting with one or both hands. This is decided by the respective opponents before the battle.) It is necessary to pull the whole body of the opponent player over the line and not just part of it. A player who is pulled completely over the line is *considered then to be a "prisoner" of the winning player and the winner then returns to his team's line with his "prisoner". During the actual battle the rest of the players robustly sing "We are going to fight with you." and after each duel the respective teams choose new combatants, the choices being made with much yelling and shouting.*

A player who takes a "prisoner" on the first round and is himself taken prisoner in one of the following rounds can rescue himself by allowing the "prisoner" he originally captured to return to his own team. If he has in fact captured more than one opponent he need only return one of his "prisoners" in order to be released. It should be noted, however, that a "prisoner" does not necessarily have to return a previous captive of his in order to be released. Instead, the respective teams can decide which prisoners will be exchanged for the prisoners of the opponent group.

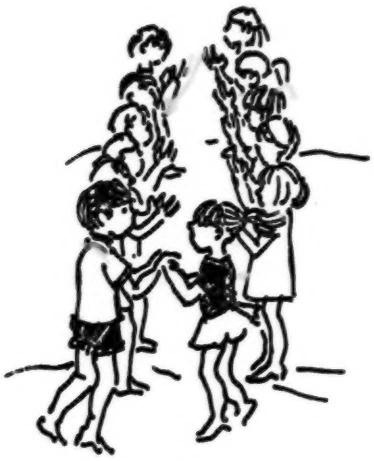
The game continues until one team is completely captured. However, if due to some unforseen circumstance the game is stopped beforehand, then victory is accorded to the team that has the greatest number of prisoners at the time of stopping the game.

Name of the game "We have a Billy-goat" Date 14.11.1966

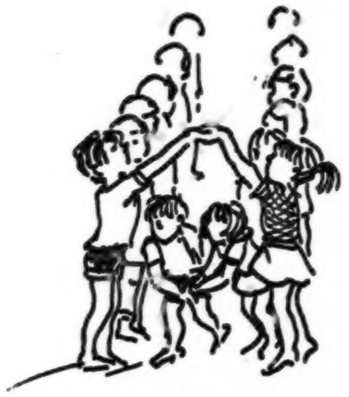
Name of Recorder G.K. Location Jerusalem (Town, Low)

Number of players 20 Participants boys and girls

Grades of players 2nd to 4th Objects used none



A



B

The children spontaneously arrange themselves into pairs and then stand one behind the other so that two parallel rows are formed. The pair members stand facing each other at a distance of approximately 1 1/2 meters. The first pair in the line join hands and gallop in the space between the two rows right to the end of the line. (See illustration - position A). All the while the rest of the players sing the song "We have a Billy-goat" and clap hands to the rhythm of the tune. The galloping pair, in fact, hops to the rhythm of this tune. When the first pair reaches the end of the line, they turn back and return to their place. When they once again arrive at their place, they release hands, turn back and skip, but this time each separately, along the outside of the rows. The rest of the players follow the member of each pair who stood at the head of their particular line, and also skip after them. When the first pair reaches the end of the line, they make a "bridge" with their hands, and the rest of the pairs once again meet, pass under the "bridge" and return to their places (see illustration B). After all the pairs have passed, two parallel rows are once *again formed but now the former first couple is at the end of the line and the former second couple is first in line and thus first in the subsequent round in which the original procedure is repeated. In this manner, the pairs are exchanged one for the other with no preference given to any particular pair.*

Throughout the game the children sing the song: "We have a Billy goat" which in turn dictates the rhythm of the skipping and clapping.

The full text of the song is:

"We have a Billy goat
The Billy goat has a beard
He also has four legs
And a very small tail
La, la, la... "

UNSTRUCTURED GAMES, Pp. 58-73

Name of the game *"Aviva Aviv"*

Name of observer *R.T.* Location *Jerusalem (Town, Low)*

Grade of players *1st* Sex *F* Group No. *15*

Objects used *none* Date *11.1.1966*

Game Procedure

A girl called Aviva stood in the center of a circle formed by four girls who touched her, fled from her, stopped at a distance from her and shouted: "Aviva Aviv, Aviva Aviv". When she ran after them, they fled still further, again stopped at a safe distance and once again yelled "Aviva Aviv", and so they continued for quite a while.

Immediately after they stopped playing this game the girls began to play another game.

Name of the game *Auto*

Name of observer *M.N.* Location *Jerusalem (Town, Low)*

Grade of players *2nd* Sex *M* Group No. *53*

Objects used *none* Date *1.11.1965*

Game Procedure

The children ran one after the other in abbreviated steps with the hands at their sides, making blowing and humming noises.

The participants were in good spirits.

Name of the game *Boxing*

Name of observer *J. Y-N.* Location *Jerusalem (Town, Low)*

Grade of players *4th* Sex *M* Group No. *29*

Objects used *none* Date *13.12.1965*

Game Procedure

The children boxed "free for all" according to their description. That is to say, there was no division into groups or pairs, but each child boxed with whomever he happened to encounter.

The participants were in good spirits. There did not appear to be any defined purpose to the activities.

Name of the game *(Bus No. 1* Date *1.3.1966*

Name of observer *R.K.* Location *Jerusalem (Town, Low)*

Grade of players *2nd* Sex *M* Group No. *39*

Objects used *round piece of paper with the* ***number*** *"one"*

Game Procedure

Once child stuck a round piece of paper on his forehead, in the center of which was printed the number "one". He was "Bus No. 1". Two other children were drivers who spoke to one another by "telephone": Each one pretended to hold a receiver in his hand, and spoke through it, even though they stood a distance of only one meter from each other.

The participants were in good spirits.

Name of the game *(Going along the wall*

Name of observer *T.H.* **Location** *Jerusalem (Town, Low)*

Grade of players *3rd* **Sex** *M* **Group No.** *14, 16*

Objects used *none* **Date** *8.10.1965*

Game Procedure

The children walked along the ledge of the wall of a hut. The ledge was very narrow and they walked slowly, trying to glance into the windows of the hut.

The participants were in good spirits.

Name of the game *Gymnastics on a bench*

Name of Observer *N.N.* Location *Jerusalem (Town, Low)*

Grade of players *8th* Sex *M* Group *58*

Objects used *none* Date *22.10.1965*

Game Procedure:

The boys performed different gymnastic exercises on a bench. Generally everyone performed the exercise that the first boy executed. Amongst the exercises performed were: Standing on one's head on the bench, jumping over the bench (both its length and its width), standing on one's hands.

The participants were in good spirits.

Name of the game *Jumprope (without a rope)*

Name of observer *N.S.* Location *Jerusalem (Town, Low)*

Grade of players *3rd* Sex *F* Group No. *17*

Objects used *none* Date *28.12.1965*

Game Procedure

Two girls stood facing each other and pretended to twirl two ropes. In the crossing in the middle stood a third girl who skipped right and left as though between and over "the ropes". After a few skips they exchanged places.

Name of the game *Knocking down nails*

Name of observer *A.R.* Location *Jerusalem (Town, Low)*

Grade of players *8th* Sex *M* Group No. *30*

Objects used *a ball, nails* Date *16.1.1967*

Game Procedure

A number of nails were stuck into the wall above the blackboard. One of the boys took a ball in his hand and tried to hit the nails and knock them down. From time to time when the ball fell on the floor, his friend tried to get hold of it and do the same thing.

It appeared that the children enjoyed this game immensely, in spite of the fact that not one of them succeeded in toppling even one nail.

It became evident that one of the players was quite "discriminated against" because, throughout most of the game, the ball was in the hand of his quicker friend.

Name of the game *"Learning to Twist"* **Date** *8.2.1966*

Name of Observer *R.K.* **Location** *Jerusalem (Town, Low)*

Grade of the players *7th* **Sex** *Female* **Group** *13*

Objects used *banana peel*

Game Procedure:

The girls jumped on the spot and sang energetically. According to them they were learning "to twist". There was a banana peel in the classroom and they purposely slid on it as they were "dancing". They were trying (without success), to imitate the movements of the twist and they laughed outloud while doing this.

The girls were in high spirits.

Name of the game *(Rocking on a plank)*

Name of Observer *D.P.* Location *Jerusalem (Town, Low)*

Grade of the players *2nd, 3rd* Sex *M & F* Group *32*

Objects used *None* Date *24.9.1965*

Game Procedure:

Two girls of the second grade stepped up onto a plank that was lying on the ground and began to rock it by lightly jumping upon it. The plank rocked because it was not on level ground. A girl from the third grade and a boy from the second grade joined them and together they rocked on the board while waving their arms in order to maintain balance.

The children played in good spirits.

Name of the game *Running competition*

Name of Observer *A. G.* Location *Jerusalem (Town, Low)*

Grade of players *3rd* Sex *M & F* Group No. *20*

Objects used *none* Date *9.3.1966*

Game Procedure:

A girl and a boy competed by running from a plank to a stone which were at a distance of approximately 20 meters from each other. The child who arrived first received one point. When they reached the stone they ran from it back to the plank and so the game continued.

The participants were in good spirits.

Name of the game *Shooting with water pistols*

Name of Observer *G.K.* Location *Jerusalem (Town, Low)*

Grade of players *6th* Sex *M* Group No. *32*

Objects used *2 water pistols* Date *3.9.1965*

Game Procedure

Two boys stood facing each other and shot at each other with water pistols. One additional child stood at the side and judged which of the children got wetter. The one who was less wet was the winner. When the pistols were emptied, the boys refilled them and continued the game.

Name of the game *'Sitting on one another'*

Name of observer *E.G.* Location *Jerusalem (Town, Low)*

Grade of players *3rd* Sex *F* Group No. *30*

Objects used *chair* Date *13.2.1967*

Game Procedure

A girl who appeared to be bigger than the others sat on a chair, and another girl seated herself on her knees. A third girl came and in turn sat on the knees of the second girl. Then they began to rock with great merriment and laughter.

The girls were in high spirits.

Name of the game *Sliding on a table* Date *23.11.1965*

Name of Observer *M.N.* Location *Jerusalem (Town, Low)*

Grade of the players *5th* Sex *M & F* Group *8*

Objects used *2 tables*

Game Procedure:

The children removed the tables from the classroom with the intention of cleaning them. Then they placed the two tables on stones so that a slope was created, and slid on the tables in turn.

The participants played in good spirits.

Name of the game *:The girlfriend is coming*

Name of observer *T.H.* Location *Jerusalem (Town, Low)*

Grade of players *5th* Sex *M* Group No. *21*

Objects used *none* Date *7.12.1965*

Game Procedure

Six boys from grade five ran about in the area. One of them declared offhandedly: "My girlfriend is coming". In response everyone was highly amused, yelled and sang. After this other children of the group shouted "my girlfriend is coming" and this aroused the same excited response every time.

After a while a fight developed when one of the children jumped on his friend and knocked him down. Through the mediation of one of the children the fight was stopped and they returned to play the game they had begun.

The participants played most of the time in good spirits, with no defined purpose.

Name of the game *'Throwing stones at a hive*

Name of Observer *G.K.* Location *Jerusalem (Town, Low)*

Grade of players *1st to 7th* Sex *M&F* Group No. *42*

Objects used *stones, belts, sweaters, handkerchiefs*

Date *22.10.1965*

Game Procedure

Next to the hedge of the school was a bee hive and bees were swarming nearby. From time to time the children ran towards the hive, threw stones at it and immediately fled as fast as they could -- scared and screaming and waving their belts, their sweaters or their handkerchiefs over their heads, in order to keep their distance from any bee that was liable to attack.

The children were in high spirits; their aim was to hit the hive.

Name of the game *Writing on the board while jumping*

Name of Observer *K.F.* Location *Jerusalem (Town, Low)*

Grade of players *6th* Sex *F* Group No. *83*

Objects used *Blackboard, chalk.* Date *24.9.1965*

Game Procedure

The girls jumped up in the air next to the blackboard. The aim was to reach the top *ledge of the blackboard and to write their full names up on top. After succeeding they erased what they had written in the same fashion. (According to the girls they were competing in order to determine who could write better.)*

B. STRUCTURE AND COMPOSITION OF PLAY GROUPS AND CHARACTERISTICS OF PLAY AND GAMES -- QUANTITATIVE ASPECTS

In our third working paper (May, 1967), a series of hypotheses have been formulated to explain the results of the observations of the first stage of the investigation. A number of predictions were derived from these hypotheses and put to test in the light of the main stage data. The relevant parts of this working paper are reproduced here in Section I (pp. 76-91). Section II (pp. 92-224) is a presentation of the observational results obtained in the main stage, mostly in forms of Tables and Figures together with various comments including those that indicate how the hypotheses and predictions have fared under the observations.

SECTION I

PREVIOUS RESEARCH AND THEORY
DATA FROM OUR FIRST RESEARCH STAGE
AND HYPOTHESES DERIVED

A. THE STRUCTURE AND MODES OF ORGANIZATION OF PLAY GROUPS: INDICES OF CAPACITY AND TENDENCY TO INTERACT.

Participation in play activities

Lehman and Witty (1927) recorded the number of different play activities engaged in by boys and girls aged 8 1/2 to 22 1/2 as reported by them in answer to questionnaires. They found that the largest range of play activities existed at the ages of 8 1/2, 9 1/2 and 10 1/2. The variety of play activities engaged in by girls was consistently smaller than that of the boys.

Figure 1, taken from data of the first stage of our investigation, shows the percentage of play participants out of the total number of pupils, by grade and sex, in schools of low and medium socio-economic level. We assume, that the rise in play participation is related to children's increasing capacity to interact in groups (Parten, 1943) and that its decline is related to a broadening and maturing of interests (Kuhlen, 1952, Chp. 5). The curve of play participation thus represents an interaction between these two factors. We therefore predict that children from low socio-economic level, who are slower to mature, will reach their peak year of play at a later age than children of high socio-economic level

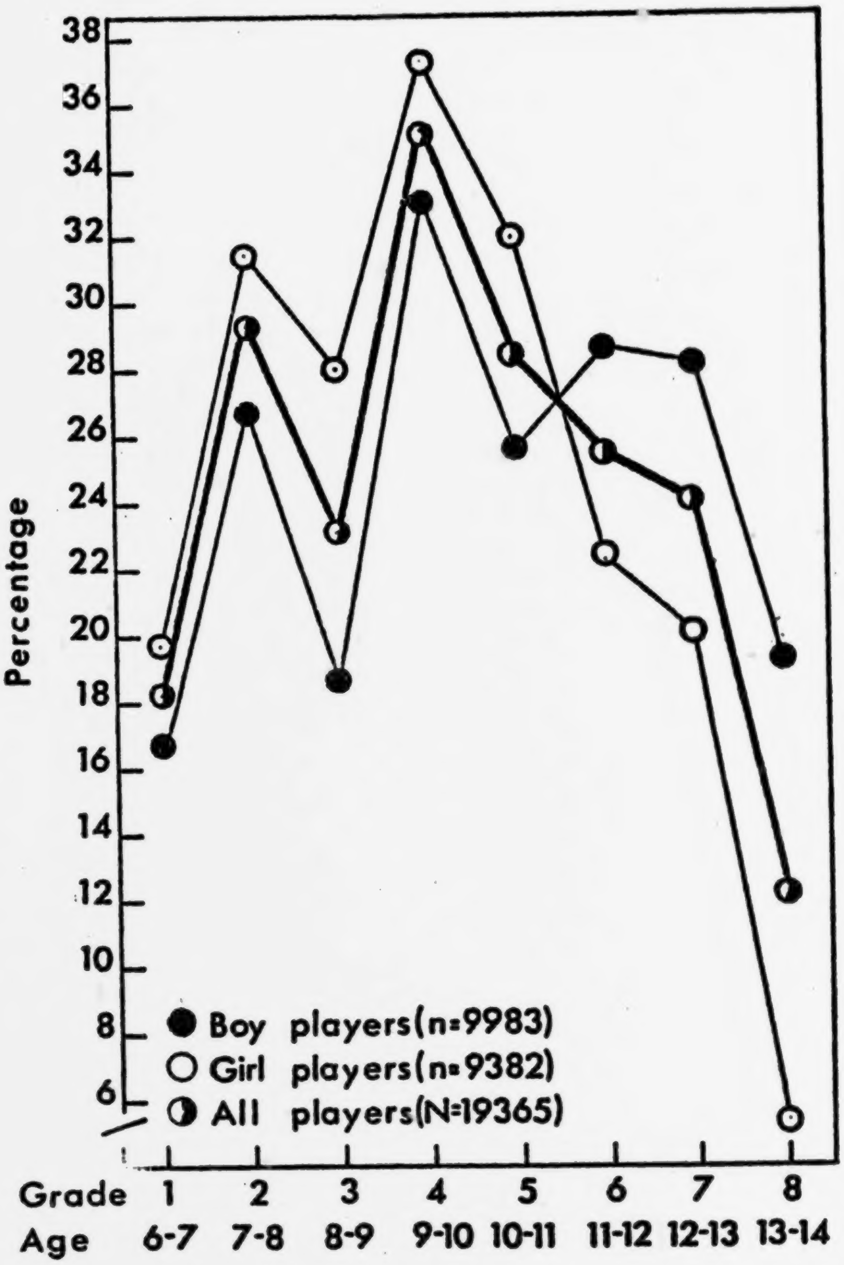


FIGURE 1. PERCENT OF PLAY PARTICIPANTS BY GRADE OUT OF TOTAL NUMBER OF PUPILS AND PERCENT OF BOY-AND GIRL-PLAYERS OUT OF THEIR RESPECTIVE TOTALS.

and that because girls mature at a faster rate, the decline in their play participation will be earlier and steeper than that of boys.

In the proposal presented in December 1966, we attempted to relate the rise and decline in play to the development of verbal capacities. We suggested, that the predominance of play should be expected to decline with the child's increased ability to communicate verbally, which provides him with an effective alternative mode of social interaction. Recent independent (unpublished) studies by P. Cowan, J. Flavell and Krauss and Glucksberg, have dealt with various aspects of the development of verbal communication between children. We hoped to be able to compare in some detail the "growth curves" of social play with those of the development of conversation amongst children and to thus put to test our hypothesis concerning the relationship between these two modes of interaction.

Other studies, which do not deal with the development of the capacity to communicate directly, but rather with the development of children's vocabularies and sentence structures (e.g., McCarthy, 1959), might also be relevant to our hypothesis. These studies indicate that the linguistic skill of young girls is superior to that of boys of the same age, and similarly for children from higher socio-economic strata in comparison with children from lower such strata. To the extent that a positive relationship exists between the development of language skills and the development of conversation, we thus again predict an earlier decline in the play activities of girls and those of children of the higher socio-economic strata.

Length of play

Young children's relatively low span of attention and their attitude of egocentricity are bound to make persistent interaction difficult. Though no direct previous studies on the time span of spontaneous activities have come to the writer's notice, there exist a number of studies which suggest that children become increasingly capable of sustained, organized efforts (Buhler, 1933; Furfey, 1927).

Figure 2, taken from the first stage of our investigation, shows the percentage of children by grade who play continuously for up to five minutes. It may be seen that there is a decline in such "short" games with age only up to the fifth grade. Taking length of play as an index of capacity to interact, we expect fewer children of high socio-economic level to play for short periods of time than children of low socio-economic level but, in particular, at the younger age levels.

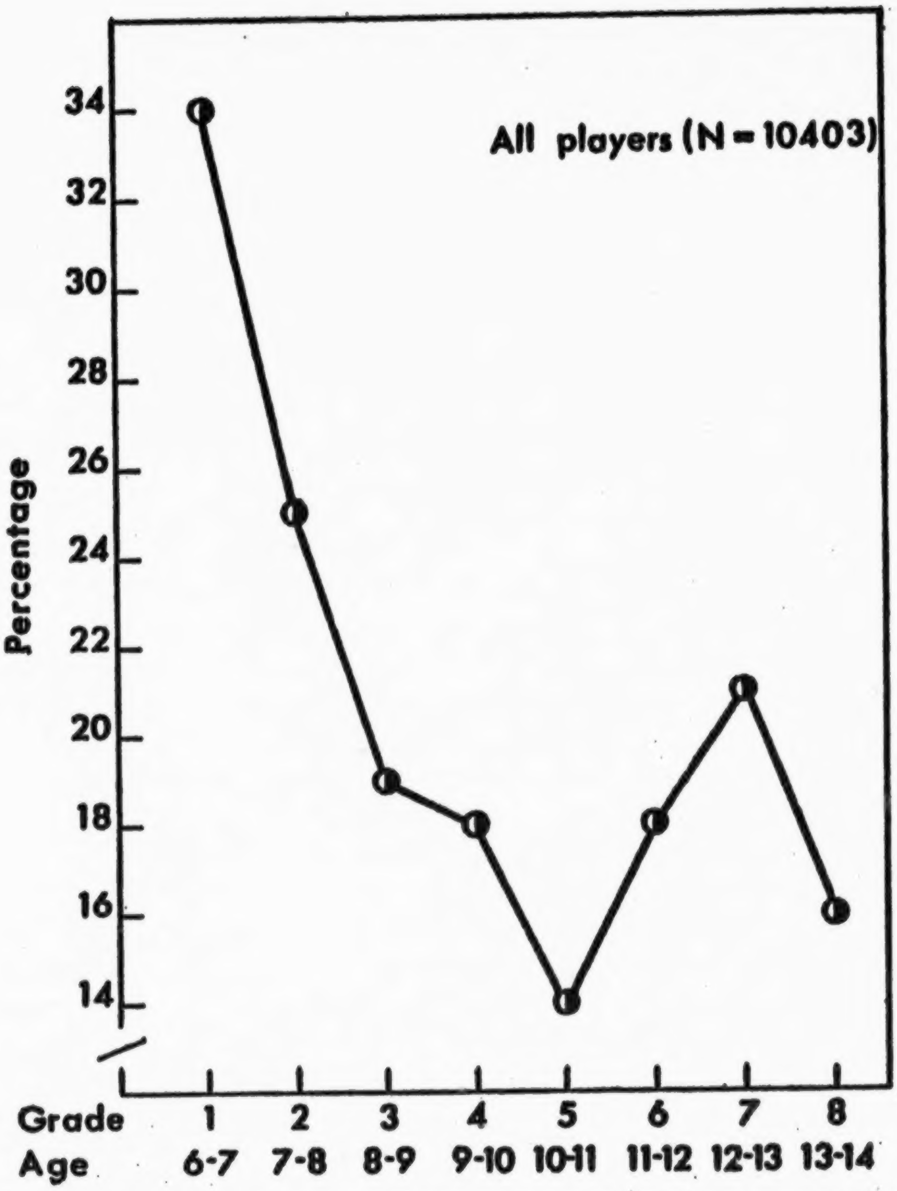


FIGURE 2. PERCENT OF PLAY PARTICIPANTS BY GRADE WHO PLAY CONTINUOUSLY FOR UP TO FIVE MINUTES, OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH GRADE.

Group size

Studies by Green (1933) and Parten (1943) indicate that the size of play groups of kindergarten children tends to increase with age. Certain theoretical models of the distribution of free-forming small groups by size, have also been suggested (e.g., James, 1953; White, 1962). These theories assume an inverse relationship to exist between the size of any specific group and its frequency of formation. Figure 3, representing data from the first stage of our investigation, shows the percentage of players in groups of various sizes by grade. This figure does not entirely support the above mentioned theoretical assumption. In particular, it is of interest to note the relative predominance of four-member groups at all age levels. Taking group size as an index for capacity to get organized, we thus predict a larger mean and median group size in the young grades of children of high socio-economic strata as compared with children from lower such strata; however, this factor might not serve as a useful index in the upper school grades.

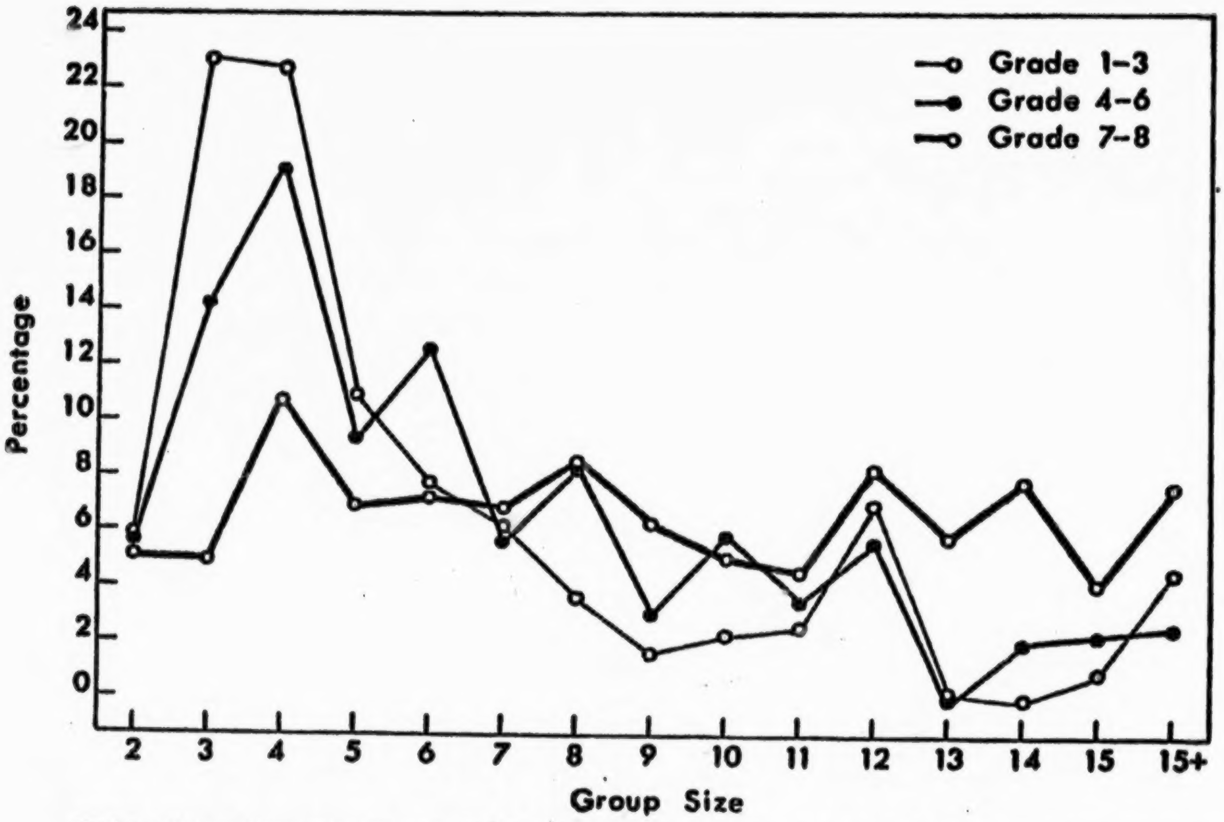


FIGURE 3. PERCENT OF PLAYERS IN THE LOW, MEDIUM AND UPPER SCHOOL GRADES WHO PLAY IN GROUPS OF 2, 3, AND UP TO 15+ PARTICIPANTS, OUT OF THE TOTAL NUMBER OF PLAYERS IN THESE GRADES.

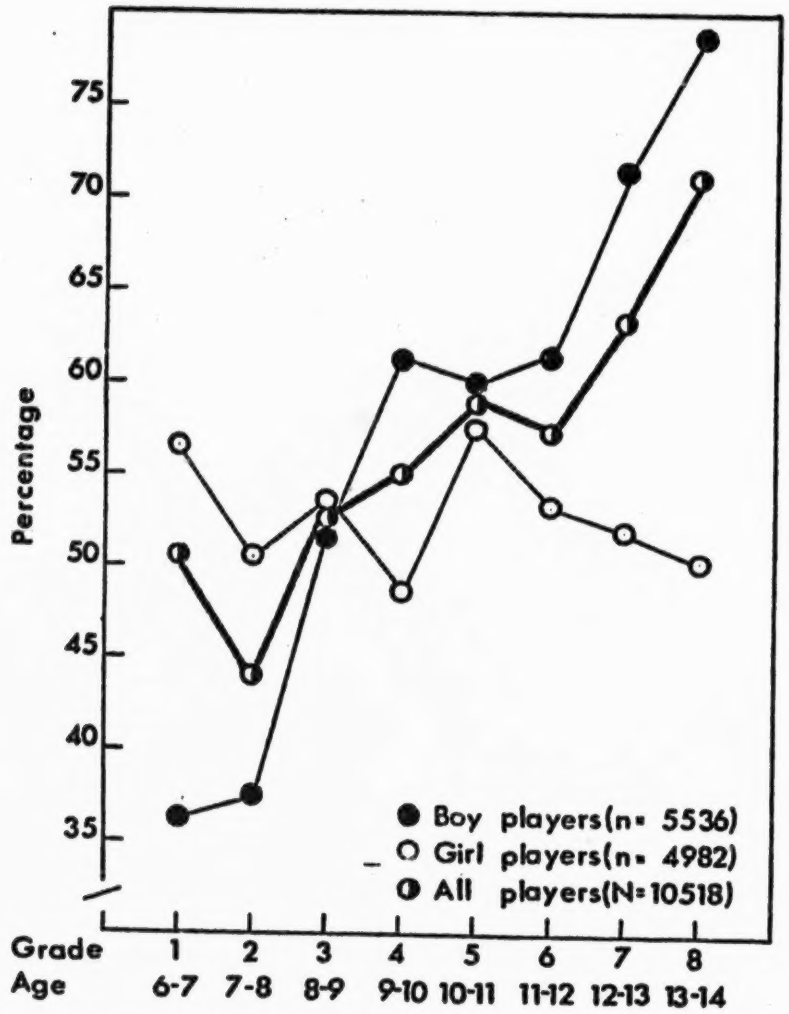


FIGURE 4. PERCENT OF PLAY PARTICIPANTS BY GRADE OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH GRADE WHO PLAY COMPETITIVE GAMES AND PERCENT OF BOY-AND GIRL-PLAYERS WHO PLAY IN SUCH GROUPS OUT OF THEIR RESPECTIVE TOTALS.

Modes of organization: play and games

Parten (1943) has classified group play as "parallel", "associative" and "cooperative", according to the extent of social interaction involved in it. She has found that kindergarten children tend to play more in the cooperative style as they become older.

Piaget (1932, 1951), states that competitive games with rules, which require a capacity to interact in a regularized and predetermined manner, increases with age. Ausubel (1956), summarizing available studies on competition suggests that the extent of competitive behavior increases with age, and that boys are more competitive than girls at all age levels.

Figure 4, based on our first stage data, shows the percentage of boy players, girl players and all players, who participated in competitive play at various age levels. Contrary to Ausubel's summary statement, it appears that girls are more competitive than boys in their play activities, up to the age of 8. However, while the degree of competitiveness in boys' games rises markedly from the age 6 to 14, no such rise can be discerned in the play activities of girls.

The early predominance of competitive play in girls as against boys may be taken as an index of their earlier social maturity and greater relative capacity to interact in a regularized fashion. The relative constancy in the extent of their participation in such play is most probably indicative of the socialization process of girls, which differs from that of boys. While we should expect a broadly parallel pattern to appear in the data of the main stage of our investigation, variations due to socio-cultural differences should also be expected:

In all societies in which children grow up in families, in which roles (and therefore rules for behavior) are ascriptive and relationships particularistic (see Parsons and Shills, 1951, and Parsons, 1951), the rules of the games of younger children will, we predict, also reflect these characteristics. The more non-particularistic the sub-culture in which the children grow up and the greater the gap between the home and wider society in this respect, the greater will be the tendency for the appearance of non-ascriptive, achievement oriented, competitive games. Thus also, the proportion of games with rules out of all games played in any society of children, will depend on whether, and to what extent it is important for the children within the particular sub-culture to "master" both ascriptive and achievement oriented sets of rules. It must be remembered that all children in our sample attend achievement orienting schools. Therefore, we expect some achievement oriented competitive games to appear everywhere. Yet it is expected that, for example, children from the lower socio-economic strata of our lower class development-town samples will play fewer games with rules and that there will be relatively more ascriptive roles in these games than in the games of lower class town children. For in the former, there is presumably less emphasis on achievement since by and large, the children's frame of reference is and remains of the more ascriptive nature, acquired at home.

Interactions between the sexes

Mussen et al. (1964), who summarizing available knowledge on this question state that "The group play of children from 7 to 11 years differs in important ways from that of children 5 to 6 years of age. In the earlier period, a boy may play -- or fight -- with either boys or girls. Their games may be femenine (e.g., playing house) or masculine (playing ball or building). Beginning at age 7 or 8, however, children begin to associate primarily with same-sex peers. The boys now chase and tease girls, rather than play with them. The boy seeks out other boys and is likely to be embarrassed if he is found alone with a group of girls. From age 9 through 11, there is usually considerable anxiety over associations with girls or revealing any interest in them." (pp. 382-3.)

Moreno's (1953) studies also indicate that sociometric choices after the second grade are almost entirely within one's own sex. Figure 5 shows the gradual decline in the percentage of children playing in groups composed of both sexes. However, the claim that in mid-childhood (ages 9-11), "sex differentiation in play is almost exclusive" is not substantiated.

The notion of universal latency in psychosexual development is further put to question

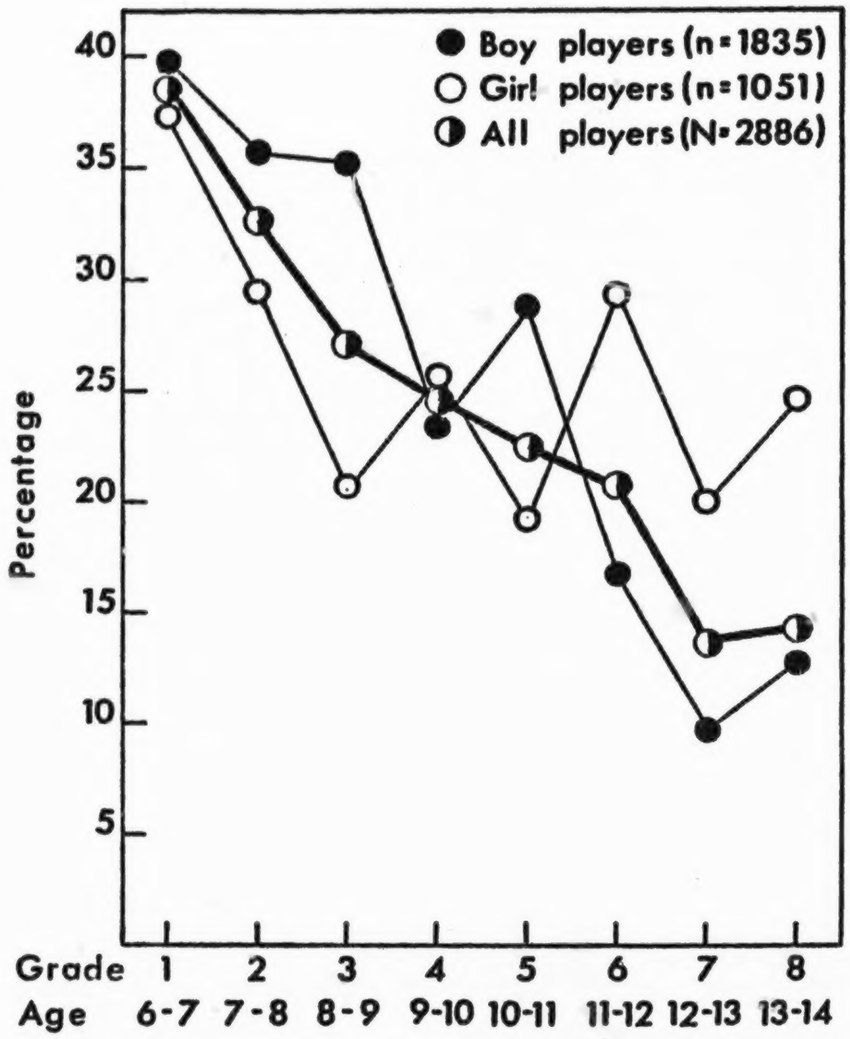


FIGURE 5. PERCENT OF PLAY PARTICIPANTS BY GRADE OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH GRADE WHO PLAY IN SEX HETEROGENEOUS GROUPS AND PERCENT OF BOY-AND GIRL-PLAYERS WHO PLAY IN SUCH GROUPS OUT OF THEIR RESPECTIVE TOTALS.

by the altogether different picture obtained in religious schools, where the number of children playing in mixed groups is only one-third of what it is in general schools, and where the development with age also seems to be different.

We expect socio-cultural factors to greatly affect the extent of sex interaction in play. Thus, we predict that hardly any interaction will occur in the Arab schools, where in spite of the fact that boys and girls sit together in the classrooms, a tradition of separation between the sexes still predominates. In the kibbutz population sex interaction should, on the other hand, occur most frequently, since boys and girls live together in the same children's home.

Interaction between age groups

The most closely relevant data available in this area is concerned with friendship choices. (e.g., Bonney, 1942; Horrocks and Barker, 1951). These studies generally suggest that while kindergarten children are unstable in their friendships and do not apply consistent criteria in their choices of friends, older children become increasingly constant in their choices and apply severer criteria for choice, such as communality of interests and similarity in intellectual level. From these findings, the prediction could be derived that older children would tend to interact more with children of their own age than would younger children.

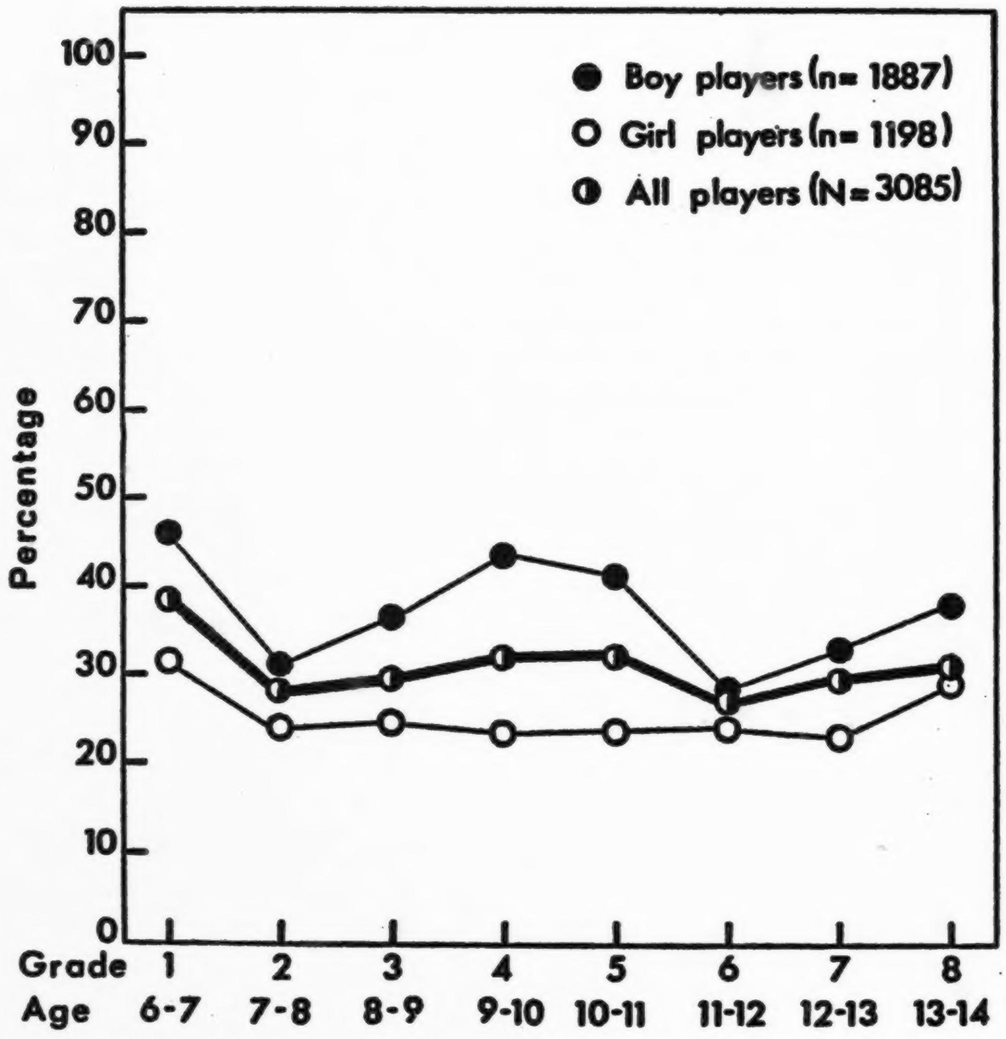


FIGURE 6. PERCENT OF PLAY PARTICIPANTS BY GRADE OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH GRADE WHO PLAY IN AGE HETEROGENEOUS GROUPS AND PERCENT OF BOY-AND GIRL-PLAYERS WHO PLAY IN SUCH GROUPS OUT OF THEIR RESPECTIVE TOTALS.

It is also known that girls are more socially inclined than boys and that boys, on the other hand are more active physically and more oriented towards vocational than social interest (Kuhlen, 1952, p. 215). One would, therefore, expect girls to apply socially oriented criteria in selecting their playmates and to thus be less inclined to play with children older or younger than themselves. Indeed, Figure 6 (see page 82 above), based on data of our investigation, shows that boys tend to play consistently more in age heterogeneous groups than do girls. The Figure also shows, contrary to our hypothesis derived from trends in friendship choices, that there is a relative stability in the degree of age interaction over various grades, particularly for girls and all players.

While we can, therefore, make a rather confident prediction concerning relative age heterogenity in boys' as against girls' play groups, our second hypothesis is less securely based.

Expanding Eisenstadt's (1956) theory on the emergence of age groups to the formation of casual play groups, we would also like to suggest a certain relationship to hold between socio-cultural factors and extent of age homogeneity: we expect greater age homogeneity in play, in sub-cultures in which the growing child has to learn to transfer from a particularistic-ascriptive to a universalistic-achievement oriented mode of interaction. In order to express achievement orientation the child must play with his contemporaries, for otherwise there is no equality of power which is necessary for this orientation. We would thus predict greater age heterogeneity in play groups, the more particularistic-ascriptive the sub-culture and the more "traditional" and disconnected from outside influences the generation observed.

B. THE NATURE AND FUNCTIONS OF PLAY AND GAMES

The phenomena of play and games have been analyzed within a number of frameworks in recent years. Piaget (1951) has contributed a major theory in this area. Various psychoanalytic interpretations have been offered (Alexander, 1958; Erikson, 1963; Peller, 1954; Waelder, 1933). There also exists Huizinga's (1949) historical analysis of games, and Callios' (1961) classification. Roberts and Sutton-Smith (e.g., 1962, 1963, 1967) have conducted a series of psycho-social studies of games and have derived specific hypotheses from these studies.

Though a comprehensive analysis will have to take account of all these varying approaches, we shall here confine ourselves to a partial comparison of the positions adopted by Piaget on the one hand, and Roberts and Sutton-Smith on the other.

While these two theoretical approaches overlap to some extent, they also differ in important ways. We shall briefly compare some of these differences and state our position with respect to them. Three major points of comparison will be discussed:

1. While Piaget is primarily concerned with play which contains no rules, Sutton-Smith and Roberts deal primarily with games, which contain rules.

In spite of the obvious differences between 'unstructured' play and 'structured' games, we regard both as basically one and the same mode of behavior which fullfil certain similar functions. We shall offer hypotheses to test our conception.

2. While for Piaget play is primarily assimilation of behavior schemata, and of situations which have been mastered "in reality", Sutton-Smith and Roberts regard games as a reflection of conflicts, which are assuaged through playing.

Our aim is to develop hypotheses which will provide a test of these opposing interpretations and which might thus lead to a more comprehensive theory.

3. While Piaget emphasizes universal characteristics of play as related to development, Roberts and Sutton-Smith are concerned primarily with cultural differences in game styles, as they relate to child rearing practices.

In the spirit of our discussion so far, we aim to distinguish characteristics of play behavior which vary with culture from those which are universally prevalent.

Play -- Without Rules and Games -- With Rules

Piaget's (1951) theory of play assumes that play has a "vital function" for development only as long as it does not contain rules. For Piaget, play is "the primacy of assimilation over accomodation": the child only gradually learns to accomodate himself to "reality" and he does so only as a result of pressure of internal and external forces (both physical and social) and because of a need to expand his acquaintance with the environment. In the young child there is thus a lack of equilibrium between his 'egocentric' tendency to distort the environment so as to fit his needs (assimilation) and his readiness to accomodate himself to the environment. Play is the expression of this unbalance. Both in the early "practice games" (age 0-2) and in the later "symbolic games" (age 2-7) the child enacts skills and situations which he has learnt or experienced, both directly and indirectly, (thereby indicating that he has previously accomodated to them in "reality"). By "playing them out" in his own time and place, the child "assimilates" both skills and experiences, in the sense that they are now performed for no other purpose than for "the pleasure of being the cause", for the "feeling of mastery", or for "recapturing of fleeting experience". The child also assimilates in play through the "distortion of reality": this enables him to compensate for frustrations encountered and to liquidate the effect of unpleasant experiences, whether met or anticipated.

According to Piaget, play ceases to possess these "vital functions" as soon as games acquire rules, i.e., turn into organized and regulated social activities. In this type of play, he claims, there is for the first time "a subtle equilibrium between assimilation to the ego -- the principle of all play -- and social life."

Yet Roberts and Sutton-Smith consider games as fulfilling vital functions just from this point onwards: In a series of cross-cultural studies based on ethnographic records, and a number of intra-cultural questionnaire studies within the U.S., these authors aimed to demonstrate significant relationships between child training variables, prevalent game types, and cultural forms. They state that "when games of three major classes of strategy (e.g., chess), chance (e.g., poker) and physical skill (e.g., football) are examined, they are found to correlate systematically with specific variables in the sphere of child training. Thus, games of strategy are related to obedience training and to cultural complexity, games of chance are associated with high responsibility training and a belief in the benevolence of the gods, and games of physical skill are related to an emphasis on achievement" (Sutton-Smith et al., 1963). These correlations "have been interpreted to mean that the function of games in human development is to provide a bridge between child training pressures and adult cultural forms." The investigators argue, (a) that "games manage the conflicts induced by child-training pressures, by providing buffered experience of fortune (chance), achievement (physical skill) and leadership (strategy)" and (b) that "games rehearse children in cognitive attitudes towards competition that will be useful ultimately in maintaining related adult cultural forms" (Sutton-Smith and Roberts, 1964).

Thus, in their conflict interpretation of games Roberts and Sutton-Smith deal only with competitive games, all of which are, of course, games with rules. It seems to us that just as Piaget's theory is limited in that it is confined to the early type of ludic activity, i.e., play, so is that of Roberts and Sutton-Smith in that it offers an interpretation for the existance of games only.

The present hypothesis

It seems to us that it is possible to treat play and games within a unified conceptual scheme by expanding Piaget's central concept of assimilation. We hypothesize that the primary function which Piaget assigns to play -- both "the pleasure of being the cause" and assimilative distortion as complementing and compensating for reality (now in particular for social reality) remain as characteristic of games as they were of play. Thus, the "feeling of mastery" now derives primarily from the child's developing skills of interacting with his contemporaries: for these skills enable the child for the first time to select the set of rules (or, in other words, the game) by which he is going to abide. Only in play does he possess such free choice in regulating his actions and interactions.

On the basis of our hypothesis, we should expect games with rules to develop earlier in a society whose children live a more regulated and organized life than in another society, in which the lives of children are less regimented. In making such a comparison it is important, of course, to equalize the general intellectual level of the populations compared, since the level of development of the capacities to interact is most probably related to intellectual level. Some of our kibbutz and village populations fit these requirements. We thus predict an earlier development of games with rules in the kibbutz population, since kibbutz children who live in children's homes, are used to a more regulated and organized pattern of living from early life than are village children.

Indirect support for our conception of the emergence of rules in games can be found in an altogether different aspect of our analysis: A detailed examination of a few games as understood and played at different age levels was undertaken. From this examination it appears that rules do not always have direct relevance to reality, for young children will spell out regulations which are, by their own admission, never performed, either because the game would have to go on for weeks before there would arise an occasion for a particular rule to come into play, or because the requirement is far beyond the children's capacity (e.g., jumping as high as one's playmate's head). Yet these are considered by the children as rules of the game. Their function is surely other than regulating the behavior to which they refer. It is as though the young child is "testing the limits" of his "mastery" over rules which, according to his decision, will or will not be followed in actual performance.

"Assimilation" and "Conflict" Interpretations of Play and Games

While our hypothesis, if confirmed, may provide a conceptual bridge between the phenomena of play and games, it does not in itself suffice to differentiate between an "assimilation" and a "conflict" interpretation of ludic activities. More than that, it appears to us that predictions derived by Roberts and Sutton-Smith from their interpretation could just as well be derived from the expanded Piageian framework. To illustrate this argument, we shall discuss one of Roberts and Sutton-Smith's central hypotheses:

The hypothesis was derived from the results of an analysis of data available in the Human Relations Area Files and Cross Cultural Files of Yale University. The data comprised 56 tribal societies for which information on child training variables, and at least partial information on games was available (Sutton-Smith, 1961). The analysis of this data indicated that games purely of physical skill, or primarily of physical skill, "showed significant positive correlations with reward for achievement and frequency of achievement" as well as with "anxiety about non-performance of achievement" tasks (Roberts and Sutton-Smith, 1962).

The hypothesis was formulated thus: "Conflict induced in children or adults by achievement training arouse in them curiosity about those expressive models that contain a representation of winning and losing as the result of the application of power and physical skill." (Sutton-Smith et al., 1963.) Such persons become involved in achievement performance as represented in games of physical skill.

A more cautious interpretation of the results from which this hypothesis was derived, would be in line with the expanded concept of assimilation: in tribal societies (as against 'complex', 'modern' societies) performance tends to be *primarily physical*. Thus, to the extent that achievement is emphasized in a particular culture of this type, it will also be expressed primarily in terms of physical skill and **prowess**. . Accepting the thesis that games, at least in part, are expressive models, we should expect high achievement training to be reflected in relatively early assimilation and mastery of achievement oriented behavior and thus also in the relative predominance of games of the physical skill variety -- precisely and only because achievement is measured in terms of physical skill in the societies under consideration.

While Roberts and Sutton-Smith derived their hypothesis without reference to the intervening variable of the types of achievement emphasized in a particular society, they did test their hypothesis within American culture. The interpretation of their results, however, remains ambiguous to some extent: they predicted that "boys, with their higher achievement training should show greater preference for games of physical skill than girls" (Roberts and Sutton-Smith, 1962). The hypothesis was tested on some 1,900 third to sixth graders in 12 midwestern townships, who filled a 180-item play and game preference scale. The results turned out in the predicted direction, but they could be interpreted to mean simply that excellence in physical performance is more highly prized and more emphasized in the education of boys as compared with that of girls, and that this, and not achievement training as such, is reflected in the differences in their play preferences.

A more difficult problem of interpretation is offered by another investigation of the same authors. They predicted that, "because games with physical skill* are associated cross-culturally with high achievement training, they will be prefered by the upper as compared with the lower status groups" Sutton-Smith et al., 1963). The prediction was tested on adults, by analyzing available material from three survey polls (made in 1940 and 1948), which contained information on the play interests and play habits of a total of some 7000 respondents, as well as specifications on their occupational status. The results did, on the whole, support the prediction.

Though these results on adults appear to go counter to our prediction on children, we nevertheless consider our hypothesis worthy of empirical investigation. The reason for this is that we believe that our data provides a more direct test of the competing hypotheses, and does not suffer from certain methodological limitations of the studies surveyed.

It seems to us that the most important advantage of our data is in that it contains information not only on the number of games played, but also on their frequency of occurrence, their duration, and in particular their relative predominance as measured by the total number of play participants over a considerable time stretch.

The data of our investigation was gathered through direct observations, conducted over an extensive period, for the specific purpose of studying the play behavior of children. In most previous studies, the measure for the tendency to play in a particular game was the number of games categorized as belonging to that style. By this criterion the same weight is given to all games regardless of whether they are played frequently and by many children, or rarely and by few. The validity of this criterion as a measure of the prevalence, or relative importance of a particular game is thus not entirely unambiguous. We have found, for example, that at least in one section of our sample, girls play fewer games than boys, but that the number of girls participating in games exceeds that of boys. It is for this reason that we consider number of play participants as a more valid criterion for comparing the relative predominance of different games, or game styles.

As a partial test of the "assimilation" as against the "conflict" interpretation of play we would thus like to offer the following two hypotheses:

a. Since, both by training and ability, children of low socio-economic strata turn more exclusively to physical activity by comparison with children of high socio-economic strata, they will more frequently play games of physical skill.

b. Engagement in games of physical skill will decrease with age, as the child's capacity for logical thinking increases and as social demands for achievement in this area increase.

While hypothesis (a) goes counter to Sutton-Smith and Roberts' prediction, hypothesis (b) also seems to us not to accord with their conceptions: It would seem to follow from their argument that one would have to expect an increase in games of physical skills with increasing age, since the pressure for achievement becomes stronger as the child grows older.

Nevertheless, while these predictions can be made within the framework of an assimilation hypothesis, they could also be in harmony with a modified conflict interpretation: Should the results indicate that the dependent variable of 'type of achievement training' is reflected in the dominant game style, it could be argued that the motive for playing in a particular style lies in the specific conflict aroused (e.g., a conflict related to physical, or to mental skill).

A more direct test of the place of "conflict" and that of "assimilation" in inducing ludic activity must therefore be sought.

The conflict interpretation assumes, that "children, seriously limited in size skill and power, yet motivated to achieve and anxious about being able to do so, can seldom find in full scale cultural participation sufficient behavioral opportunities to match adequately, both their desire and their anxious incompetence" (Sutton-Smith et al., 1963). The resulting fear of failure enhances children's "curiosity" in expressive models (and specifically in games), that offer opportunities for rivalry or competition in which the child has a fair chance of winning. On these assumptions, it should be expected that rural children, who have more opportunities than urban children for real participation in the adult world (e.g., helping at work), should develop fewer, or less intensive conflicts, and hence a more restricted interest in games. An interpretation favouring assimilation as its central concept would, on the other hand, lead to the opposite prediction: Since play is considered primarily an expression of assimilation and "mastery" of reality, and since rural children have more opportunities for such mastery of the real world than do urban children, rural children should be expected to play more than their urban counterparts.

In order to carry out such comparisons of urban and rural children, they must be matched first of all, for socio-economic level. Moreover, since training in achievement as such is probably also a contributing factor to the dgree of participation in competitive games, it would be desirable that the compared groups should be equal also in this respect. Parts of the rural and urban sample of our research population are matched socio-economically. The training in achievement is higher in the urban population. On the assimilation hypothesis, we should therefore expect town children to play less or -- because of the achievement factor -- to play to the same extent as village children. We propose to test this hypothesis on our own data.

C. PERIODIC GAMES: EXPLORATION OF NEW PHENOMENA

Some Limitations of Our Hypotheses

Many of the predictions made in Sections A and B were derived from the first stage of the investigation, which was conducted over a six weeks' period. The predictions thus assume a greater constancy in play behavior over time than probably exists. This is well demonstrated in Figure 7, which represents the "life cycle" of three games as observed in one school. The highly seasonal character of one of these games ("gummi") should be obvious. It is characteristic of this game, that it is played almost exclusively by girls, and predominantly in groups of three. This is not, of course, characteristic of all other games. Results obtained from a six week obervation period are likely, therefore; to

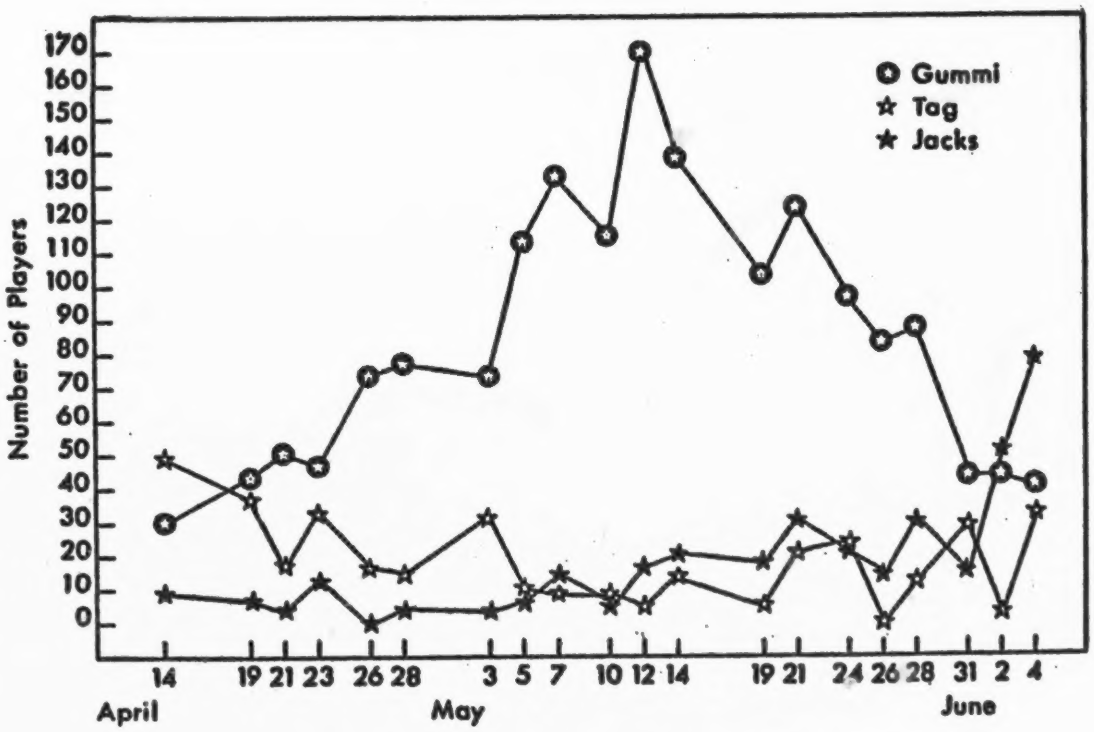


FIGURE 7. NUMBER OF CHILDREN IN ONE JERUSALEM SCHOOL PLAYING SPECIFIED GAMES, BY DATE.

be biased in various ways due to specific attributes of the particular games which happen to predominate at that time. In order to avoid such a bias, observations must extend over an extensive period.

The decision as to what period of time is sufficient to ensure coverage of a representative sample of play activities has perforce been an arbitrary one: We have decided on a period of 14 months (excluding the summer vacations) in order to have a certain period of overlap in observations on two succeeding calendar years. This decision now enables us to explore to some extent the nature of the periodic cycles of various games. On this issue our analysis begins simply by an attempt to define significant variables in the data, which will at the same time enable us to examine the little explored phenomenon of seasonal games.

The Nature of Seasonal Games and Periodicity in Play

In what ways do the games that periodically appear and disappear, differ from other games? At "high season", such games are comparable to a severe form of addiction: children may be observed to play jacks, hopscotch or some form of rope skipping for hours without a break and run back to it at every free moment they have. How and why do these games subside?

Does the seasonal game appear all at once or does it gradually disappear, as Figure 7 suggests?

How frequently do various periodic games appear? Is there a regular "game cycle"? What determines such a cycle?

To what extent do socio-cultural differences between communities affect the seasonal games played? Do game sequences in kibbutzim as against, e.g., immigrant communities display particular features?

How does the new game spread from community to community? What is the order of importance of obstacles to such diffusion, socio-economic, difference in community structure, or geographic location?

With the exception of Chatteau's (1955) investigation, seasonal games have received little attention in psychological research. We believe, that before attempting to explain a phenomenon, it is essential to have some command of the facts which it represents. It is in this sense that we aim to preserve room in our analysis for descriptions of unexplored phenomena and for the discovery of new variables which have relevance to both old and new research problems.

On a combined approach, which will on the one hand lead to specific predictions but on the other permit the data to reveal more of the nature of play and games than has so far been unraveled, holds promise for a comprehensive analysis.

SECTION II

ANALYSIS OF MAIN STAGE DATA

The data presented in the following pages poses more questions than it answers. It was not possible, within the framework of this Report to do more than point at some aspects of the data presented in the Graphs and Tables. A great deal of information had to be excluded entirely. Further analyses in the coming years will, hopefully, lend more depth to the many issues touched upon here.

For the convenience of the reader, the Figures follow each of the topics discussed, after which the relevant Table(s) are presented. The Figures face one another wherever direct comparisons between them are of particular interest (and at the same time technically feasable).

PARTICIPATION IN PLAYGROUPS

Figures 1-2 (pp. 94-95)
Table 8 (p. 96)

Figure 1 represents the percent play participants by grade and sex out of the total number of pupils in all seven high-level schools, whose mean socio-economic score was 5.32, and mean level of school achievement 77.2. Figure 2 represents the corresponding data for the seven low-level schools, whose mean socio-economic score was 1.38, and mean level of school achievement 64.0.

Comparing Figures 1 and 2 it will be seen that (a) fewer play participants were recorded in the low-level schools, (b) the peak of play is reached in the high-level schools at an earlier age than in the low-level school, and (c) in the high-level school girls reach the peak of play one year in advance of the boys. These findings are in line with our hypotheses (pp. 76-77), that the faster maturation of high-level children and specifically, their faster verbal development (see p. 98), will result in an earlier decline in their play participation; and correspondingly, that the earlier maturation of girls as compared with boys will result in an earlier decline in their play participation. This tendency is not apparent in girls of the low-level schools, perhaps due to the fact that less attention is being paid to their education in comparison with the boys.

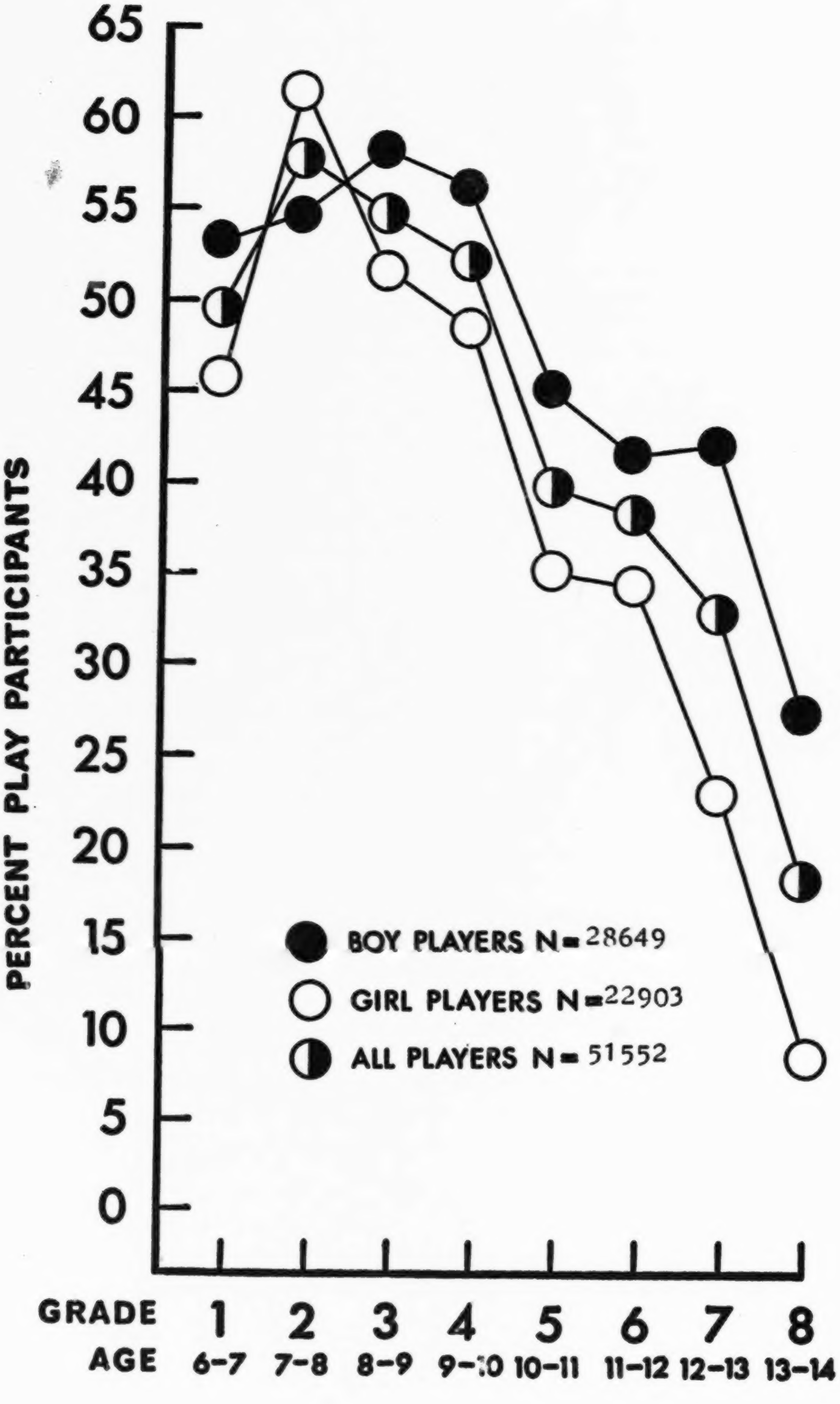


FIGURE 1
ALL HIGH LEVEL SCHOOLS
(MEAN SOCIO-ECONOMIC LEVEL = 5.32)
(MEAN LEVEL OF SCHOOL ACHIEVEMENT = 77.2)
PERCENT OF PLAY PARTICIPANTS BY GRADE AND SEX OUT OF THE TOTAL NUMBER OF CHILDREN IN EACH GRADE

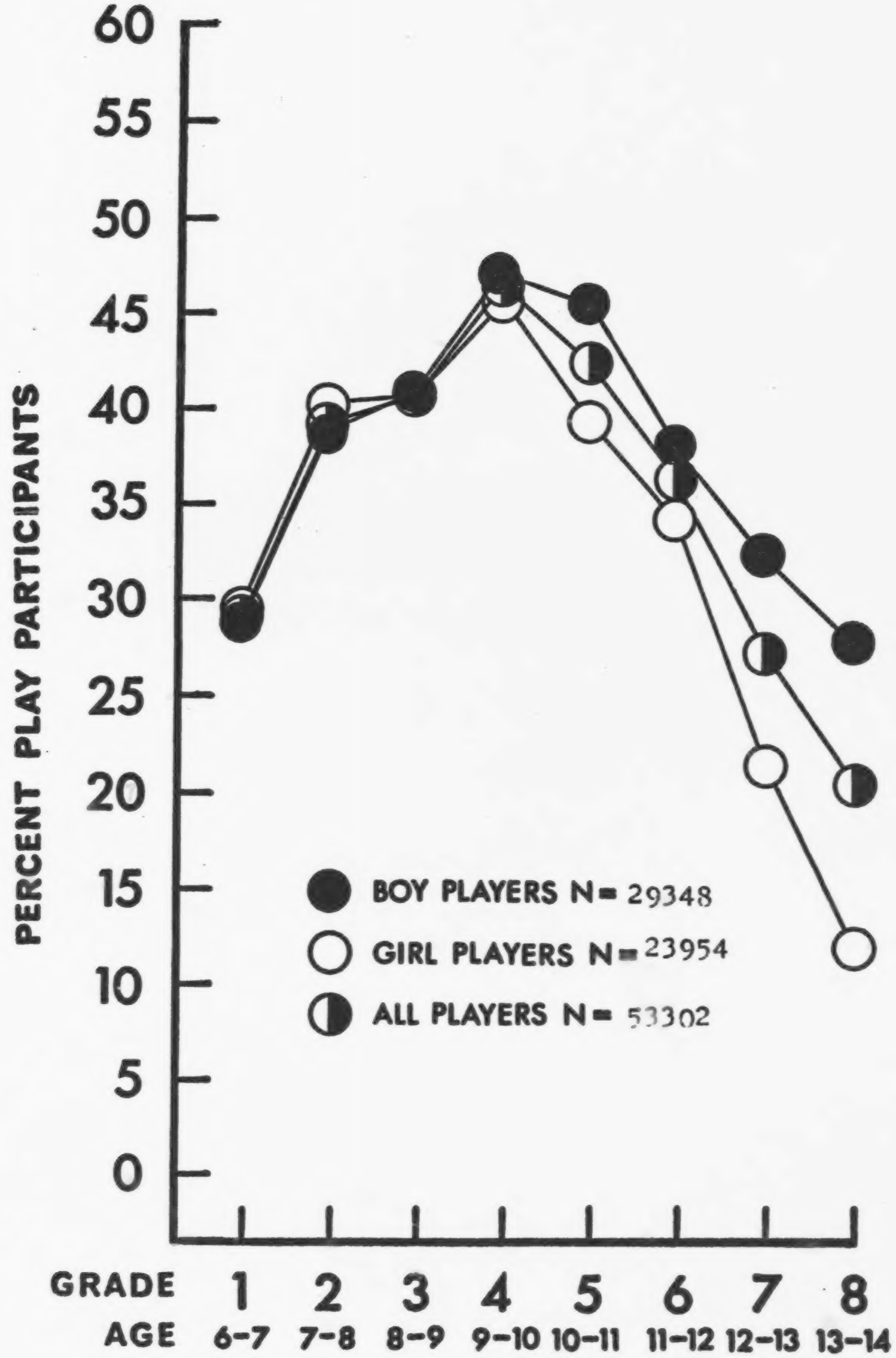


FIGURE 2

ALL LOW LEVEL SCHOOLS
(MEAN SOCIO-ECONOMIC LEVEL = 1.38)
(MEAN LEVEL OF SCHOOL ACHIEVEMENT = 64.0)
PERCENT OF PLAY PARTICIPANTS BY GRADE AND SEX OUT OF THE TOTAL NUMBER OF BOYS, GIRLS AND ALL CHILDREN IN EACH GRADE

TABLE 8

TOTAL NUMBER OF PLAY PARTICIPANTS BY AGE AND SEX AND PERCENT OF PLAY PARTICIPANTS OUT OF TOTAL NUMBER OF CHILDREN BY GRADE AND SEX

		GRADE								
		1	2	3	4	5	6	7	8	TOTAL
NUMBER										
ALL HIGH	BOYS	3568	4194	4085	3780	3206	3519	3645	2652	28649
	GIRLS	2953	4096	3728	3929	2876	2666	1847	808	22903
	BOTH	6521	8290	7813	7709	6082	6185	5492	3460	51552
ALL LOW	BOYS	3123	3756	4086	4453	4606	3788	3231	2305	29348
	GIRLS	2649	3761	3961	4407	3516	2875	1937	848	23954
	BOTH	5772	7517	8047	8860	8122	6663	5168	3153	53302
PERCENT										
ALL HIGH	BOYS	53.1	54.8	58.2	56.1	45.3	41.8	42.3	27.6	46.3
	GIRLS	45.9	61.3	51.7	48.7	35.1	34.5	23.0	8.9	37.3
	BOTH	49.6	57.9	54.9	52.1	39.9	38.4	33.0	18.5	41.8
ALL LOW	BOYS	28.7	38.7	40.9	47.2	45.7	38.3	32.5	28.0	37.6
	GIRLS	29.8	40.2	40.8	45.9	39.5	34.4	21.8	12.1	33.9
	BOTH	29.2	39.4	40.8	46.6	42.8	36.5	27.5	20.7	35.8

LONE PLAYERS AND NON-PLAYERS

Figures 3-5. (pp. 99-101)
Table 9 (pp. 102-105)

How do the children who do not participate in group play occupy themselves? Following the extensive period of recording of playgroups, a brief series of 2-5 observations was carried out in each school in which all activities not recorded during regular observations were recorded. These were classified into the categories specified in Table 9 which gives their distribution by age and sex in all 14 schools. It should be remembered that these data are based on a few observations only, and drawing more than highly tentative conclusions from them, would be entirely unjustified.

Of the categories presented in the Table, we have singled out two that relate to play -- lone players and onlookers. Onlookers were also recorded throughout the observations in our two Jerusalem schools (high-level and low-level), in which the same students served as observers. In addition we have examined the category of conversers, since we had hypothesized that there exists a relationship between the decline in group play and the rise in capacity to interact verbally (p. 77).

The low percentage of lone players out of the total number of children stands out clearly in Figure 3. This Figure also shows a general tendency amongst kibbutz children to play alone to a far greater extent than other children (the All Schools graph includes the kibbutzim). Since kibbutz children spend much more of their organized life with one another than do non-kibbutz children, this finding may suggest a certain satiation with group interaction, or a need to be on one's own some of the time.

Figure 4 shows the percent of onlookers by grade in our high-level and low-level Jerusalem schools, in which this type of passive participation was recorded simultaneously with recordings of playgroups. (See the record sheet on p. 24). It may be seen that there exists a considerable correlation between the extent of passive and active interest in play at different age levels. It may also be seen that there is more passive participation in the low-level than in the high-level school. These findings were confirmed in general in our brief period of recordings of non-players in all schools, but there were some important deviations, of which we shall mention here only the fact there were very few onlookers in the Arab schools.

Figure 5, which shows the degree to which children engage in conversation in the Arab Schools as compared with All Schools (including the Arab Schools), highlights the extent to which this type of activity may be culturally determined. At the same time however, the Figure also lends support to our hypothesis (p. 77), that conversation may provide to some extent, a mode of interaction alternative to group play, as children become more able to interact verbally: there is a rise in extent of conversation with age.

These findings suggest the hypothesis that in Arab culture there exist reinforcements for verbal interaction which, however, does not yet express itself clearly in the early grades, just due to the simple fact that at that age the capacity for verbal interaction is not yet sufficiently developed. In addition, it may be seen in Table 9 that there is a tendency for girls to converse more than boys and that this tendency is more marked in the lower than in the upper school grades. This finding supports our hypothesis (p. 77) that there exists a differential between the capacity of boys and girls of the same age for verbal interaction, as a result of the known fact that the development of verbal abilities in girls tends to come earlier in girls than in boys.

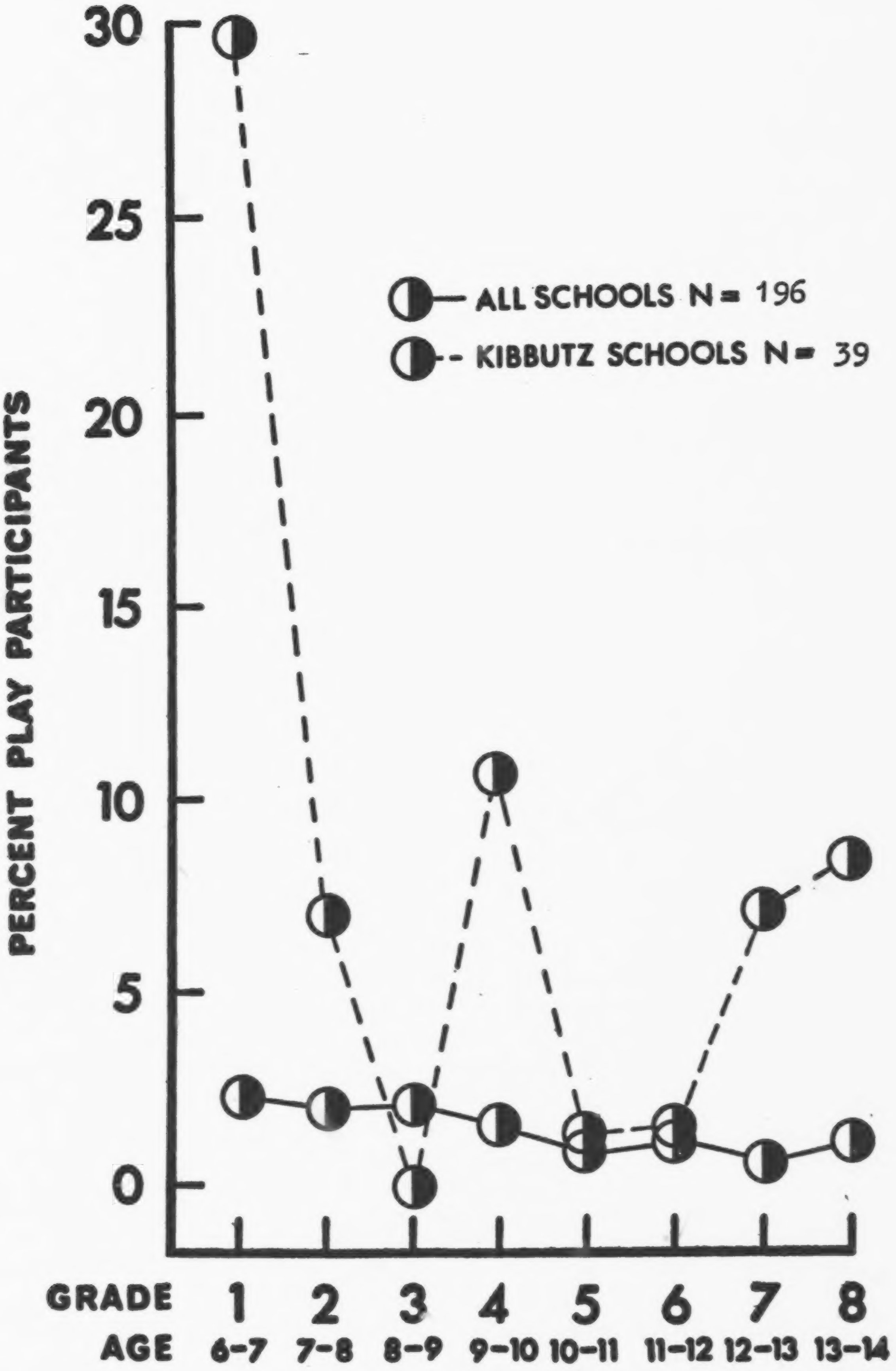


FIGURE 3
PERCENT OF LONE PLAYERS BY GRADE IN ALL SCHOOLS AND KIBBUTZ SCHOOLS, OUT OF THE TOTAL NUMBER OF CHILDREN IN EACH GRADE

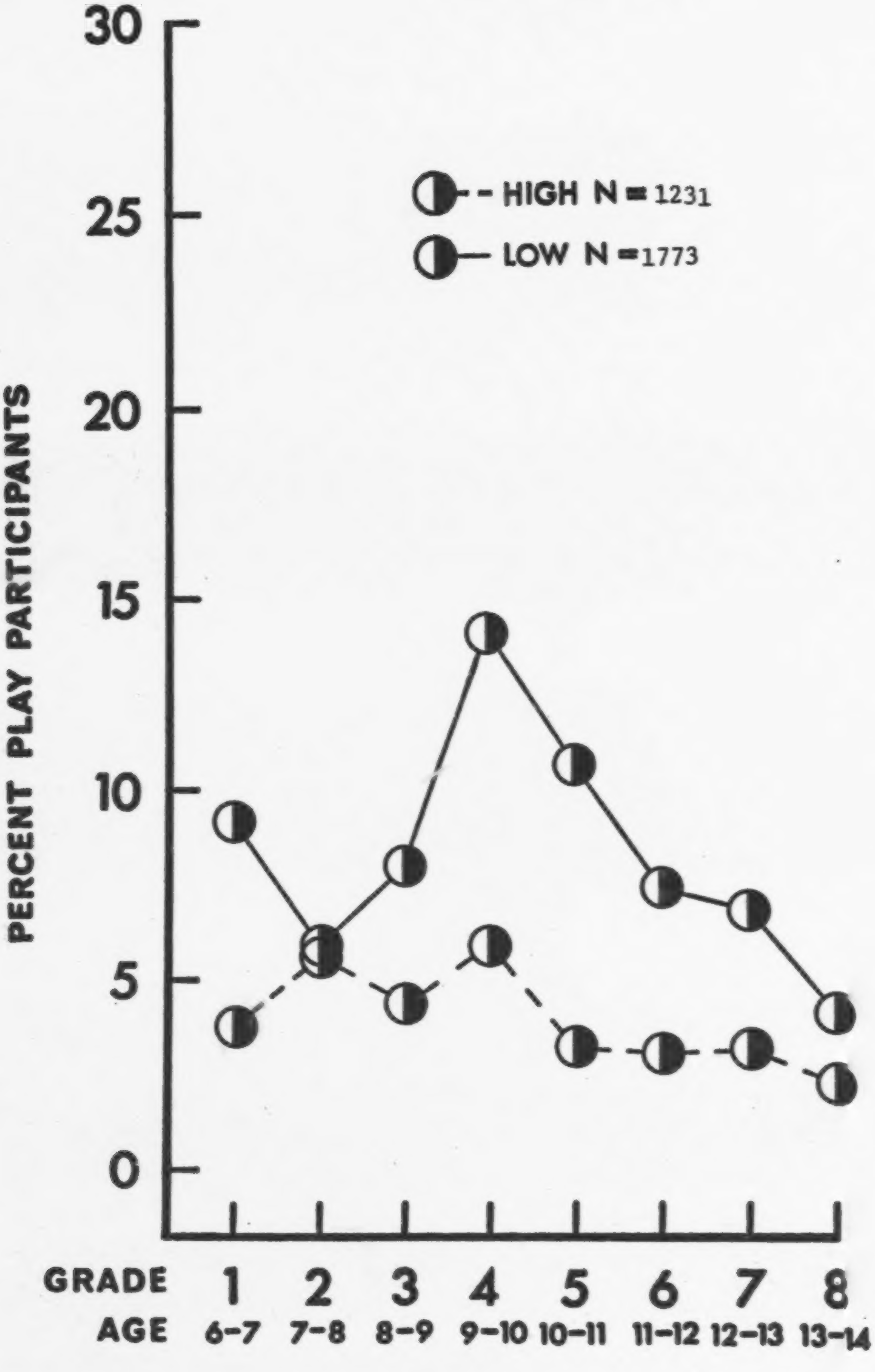


FIGURE 4
PERCENT OF ONLOOKERS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL OUT OF THE TOTAL NUMBER OF CHILDREN IN EACH GRADE

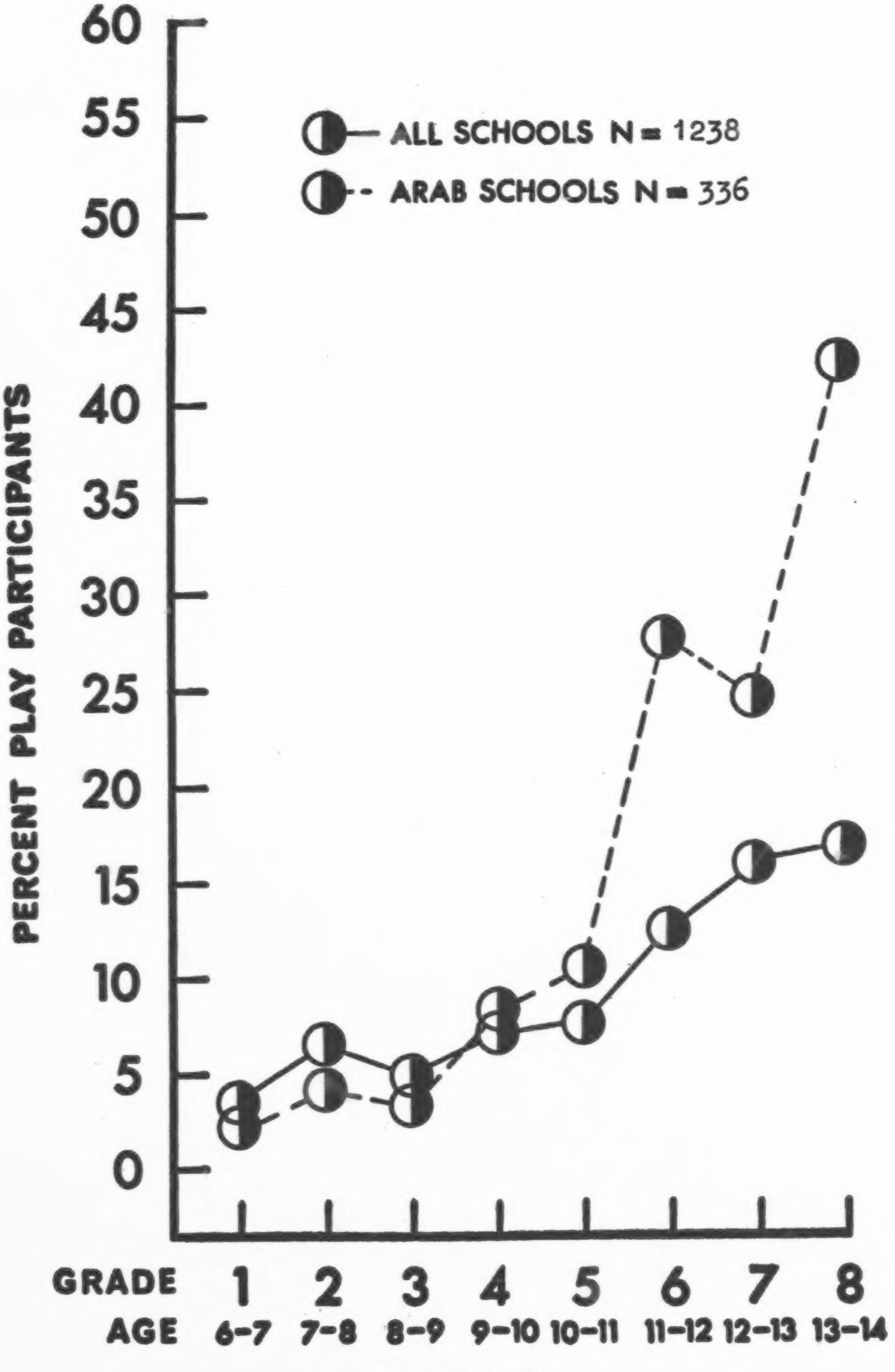


FIGURE 5
PERCENT OF CONVERSERS BY GRADE IN ALL SCHOOLS AND THE ARAB SCHOOLS, OUT OF THE TOTAL NUMBER OF CHILDREN IN EACH GRADE

TABLE 9

NUMBER AND PERCENT OF NON-PLAYERS AND LONE PLAYERS IN THE LOWER AND UPPER GRADES OF ALL SCHOOLS, NUMBER AND PERCENT OF CONVERSERS IN EACH GRADE IN THE ARAB SCHOOLS AND IN ALL SCHOOLS, OF SOLITARY PLAYERS IN THE KIBBUTZ SCHOOLS AND IN ALL SCHOOLS AND OF ONLOOKERS IN THE HIGH-LEVEL AND THE LOW-LEVEL JERUSALEM SCHOOLS

1. ONLOOKING

	1-4	5-8	TOTAL
N	333.0	217.0	550.0
	297.0	127.0	424.0
	630.0	344.0	974.0
%	9.8	6.4	8.1
	9.4	4.1	6.8
	9.6	5.3	7.4

2. INTERACTING WHILE ONLOOKING*

	1-4	5-8	TOTAL
N	0.0	1.0	1.0
	0.0	0.0	0.0
	0.0	1.0	1.0
%	0.0	0.0	0.0
	0.0	0.0	0.0
	0.0	0.0	0.0

3. LOOKING AT OBJECTS

	1-4	5-8	TOTAL
N	121.0	97.0	218.0
	133.0	80.0	213.0
	254.0	177.0	431.0
%	3.6	2.8	3.2
	4.2	2.6	3.4
	3.9	2.7	3.3

4. CONVERSING ABOUT OBJECTS OR PLAYERS WHILE OBSERVING THEM

	1-4	5-8	TOTAL
N	15.0	39.0	54.0
	7.0	18.0	25.0
	22.0	57.0	79.0
%	0.4	1.1	0.8
	0.2	0.6	0.4
	0.3	0.9	0.6

5. CONVERSING

1-4	5-8	TOTAL
161.0	439.0	600.0
211.0	427.0	638.0
372.0	866.0	1238.0
4.7	12.9	8.8
6.6	13.8	10.2
5.7	13.3	9.5

6. READING FOR PLEASURE (NOT HOMEWORK)

1-4	5-8	TOTAL
4.0	50.0	54.0
11.0	19.0	30.0
15.0	69.0	84.0
0.1	1.5	0.8
0.3	0.6	0.5
0.2	1.1	0.6

7. SHARING AND INTERACTING**

1-4	5-8	TOTAL
27.0	30.0	57.0
68.0	33.0	101.0
95.0	63.0	158.0
0.8	0.9	0.8
2.1	1.1	1.6
1.4	1.0	1.2

8. JUST RUNNING OR RUNNING TO -

1-4	5-8	TOTAL
6.0	2.0	8.0
11.0	2.0	13.0
17.0	4.0	21.0
0.2	0.1	0.1
0.3	0.1	0.2
0.3	0.1	0.2

TABLE 9, CONTINUATION

9. JUST WALKING, STANDING OR SITTING

	1-4	5-8	TOTAL
N	124.0	112.0	236.0
	156.0	81.0	237.0
	280.0	193.0	473.0
%	3.6	3.3	3.5
	4.9	2.6	3.8
	4.3	3.0	3.6

10. CLASSROOM ACTIVITIES***

	1-4	5-8	TOTAL
N	2.0	20.0	22.0
	5.0	7.0	12.0
	7.0	27.0	34.0
%	0.1	0.6	0.3
	0.2	0.2	0.2
	0.1	0.4	0.3

11. SOLITARY PLAY

	1-4	5-8	TOTAL
N	72.0	30.0	102.0
	61.0	33.0	94.0
	133.0	63.0	196.0
%	2.1	0.9	1.5
	1.9	1.1	1.5
	2.0	1.0	1.5

12. EATING

	1-4	5-8	TOTAL
N	168.0	125.0	293.0
	194.0	140.0	334.0
	362.0	265.0	627.0
%	4.9	3.7	4.3
	6.1	4.5	5.3
	5.5	4.1	4.8

13. INSTRUMENTAL ACTIVITIES****

	1-4	5-8	TOTAL
N	40.0	50.0	90.0
	72.0	63.0	135.0
	112.0	113.0	225.0
%	1.2	1.5	1.3
	2.3	2.0	2.2
	1.7	1.7	1.7

14. QUARRELING

	1-4	5-8	TOTAL
N	0.0	2.0	2.0
	2.0	4.0	6.0
	2.0	6.0	8.0
%	0.0	0.1	0.0
	0.1	0.1	0.1
	0.0	0.1	0.1

15. OTHER ACTIVITIES

	1-4	5-8	TOTAL
N	7.0	4.0	11.0
	1.0	0.0	1.0
	8.0	4.0	12.0
%	0.2	0.1	0.2
	0.0	0.0	0.0
	0.1	0.1	0.1

---

* e.g., "one onlooker leaning on another's shoulder".

** e.g., "sharing an ice cream"; "one girl combing another".

*** e.g., "a meeting of the class counsel";"preparing the class journal".

**** e.g., "doing homework"; "discussing homework"; "cleaning his desk"; "tying up shoe laces".

TABLE 9, CONTINUATION

				GRADE								
				1	2	3	4	5	6	7	8	TOTAL
CONVERSING												
	ARAB SCHOOLS	N	BOYS	9.0	5.0	6.0	17.0	29.0	55.0	36.0	40.0	197.0
			GIRLS	3.0	11.0	9.0	11.0	9.0	23.0	37.0	36.0	139.0
			BOTH	12.0	16.0	15.0	28.0	38.0	78.0	73.0	76.0	336.0
		%	BOYS	2.8	2.3	2.8	8.9	12.7	32.5	17.5	33.6	11.9
			GIRLS	1.5	6.9	4.4	7.5	7.4	20.5	42.5	60.0	12.7
			BOTH	2.3	4.3	3.5	8.3	10.9	27.8	24.9	42.5	12.2
	ALL SCHOOLS	N	BOYS	15.0	51.0	29.0	66.0	60.0	99.0	139.0	141.0	600.0
			GIRLS	50.0	58.0	55.0	48.0	69.0	84.0	134.0	140.0	638.0
			BOTH	65.0	109.0	84.0	114.0	129.0	183.0	273.0	281.0	1238.0
		%	BOYS	1.6	6.0	3.4	8.5	7.4	11.7	15.8	16.2	8.8
			GIRLS	6.4	7.6	6.7	6.0	8.3	11.8	16.9	18.3	10.2
			BOTH	3.8	6.7	5.0	7.2	7.8	11.8	16.3	17.2	9.5
SOLITARY PLAY												
	KIBBUTZ SCHOOLS	N	BOYS	4.0	5.0	0.0	0.0	0.0	0.0	3.0	3.0	15.0
			GIRLS	7.0	0.0	0.0	6.0	1.0	1.0	5.0	4.0	24.0
			BOTH	11.0	5.0	0.0	6.0	1.0	1.0	8.0	7.0	39.0
		%	BOYS	26.7	12.8	0.0	0.0	0.0	0.0	5.0	5.5	5.2
			GIRLS	31.8	0.0	0.0	20.7	2.4	2.6	9.4	14.3	9.1
			BOTH	29.7	7.0	0.0	10.7	1.4	1.5	7.1	8.4	7.1
	ALL SCHOOLS	N	BOYS	21.0	18.0	22.0	11.0	6.0	8.0	5.0	11.0	102.0
			GIRLS	19.0	14.0	13.0	15.0	8.0	10.0	6.0	9.0	94.0
			BOTH	40.0	32.0	35.0	26.0	14.0	18.0	11.0	20.0	196.0
		%	BOYS	2.3	2.1	2.6	1.4	0.7	0.9	0.6	1.3	1.5
			GIRLS	2.4	1.8	1.6	1.9	1.0	1.4	0.8	1.2	1.5
			BOTH	2.3	2.0	2.1	1.6	0.9	1.2	0.7	1.2	1.5

TABLE 9, CONTINUATION

			GRADE								
			1	2	3	4	5	6	7	8	TOTAL
ONLOOKING											
HIGH-LEVEL SCHOOL	N	BOYS	81	108	89	121	71	76	125	71	742
		GIRLS	57	92	72	92	43	54	32	47	489
		BOTH	138	200	161	213	114	130	157	118	1231
	%	BOYS	4.34	5.52	4.68	6.54	4.22	3.55	5.15	2.77	4.53
		GIRLS	3.47	5.86	4.23	5.38	2.38	2.69	1.37	2.04	3.24
		BOTH	3.93	5.67	4.47	5.98	3.27	3.13	3.30	2.42	3.91
LOW-LEVEL SCHOOL	N	BOYS	72	96	86	203	234	135	143	72	1041
		GIRLS	89	58	96	191	123	71	71	33	732
		BOTH	161	154	182	394	357	206	214	105	1773
	%	BOYS	8.71	7.08	8.05	16.96	14.71	9.36	10.09	6.21	10.35
		GIRLS	9.51	4.61	8.05	12.24	7.31	5.66	4.35	2.58	6.78
		BOTH	9.13	5.89	8.05	14.29	10.90	7.64	7.02	4.31	8.50

PARTICIPATION IN STRUCTURED AND UNSTRUCTURED GAMES IN TWO SCHOOLS

Figure 6 - 7 (pp. 107-108)
Table 10 (p. 109)

The Examples from the Encyclopedia of Games demonstrate the distinction made between structured games (pp. 36-62) and unstructured games (pp. 58-73). In extension of the findings on pre-school and early grade children (Partern and Newall, 1943; Piaget, 1932), we anticipated a constant increase with age in play participation in structured games. This was tested on the two Jerusalem schools of our sample, one of high-level and the other of low-level. (These two schools were particularly suitable for direct comparisons since the same students served as observers in both.) It may be seen from Figures 6 and 7 that following the rise in participation in structured games with increasing age, a decline is evident in all cases in the upper school grade, and in the case of high-level girls this decline begins already in the seventh grade. This tendency may well reflect the change in children's attitude to rules described by Piaget (1932): at a young age children are less capable of conformity to rules or of interacting socially in a regularized manner. As they grow older, their attitude to rules first becomes more rigid and uncompromising, as a result of which they tend to reject spontaneously created play, but later on becomes flexible again, though in a different sense than at a very young age. But Piaget did not quite forsee that the increased flexibility might not only lead to greater tolerance towards introduction of on-the-spot variants in rule governed games, but also to an increase of play activity in unstructured games. Notice, in this connection, that in grades 1-3 the percent participants in structured games in the low-level school is smaller than that in the high-level school, and that the decline in percent participants in such games sets in one year earlier in the case of high-level girls than in all other cases. This finding may reflect the slower rate of development of low-level children, and the fastest rate of development of high-level girls, already discussed with reference to Figures 1 and 2. At the same time it should be noticed that the percent play participation in structured games tends to be larger for girls than for boys at all age levels. An additional analysis of game rules is presented on pp. 218-9.

In examining this data, it should be remembered that Figures 6-7 and the corresponding Table 10, present the analysis of two schools only.

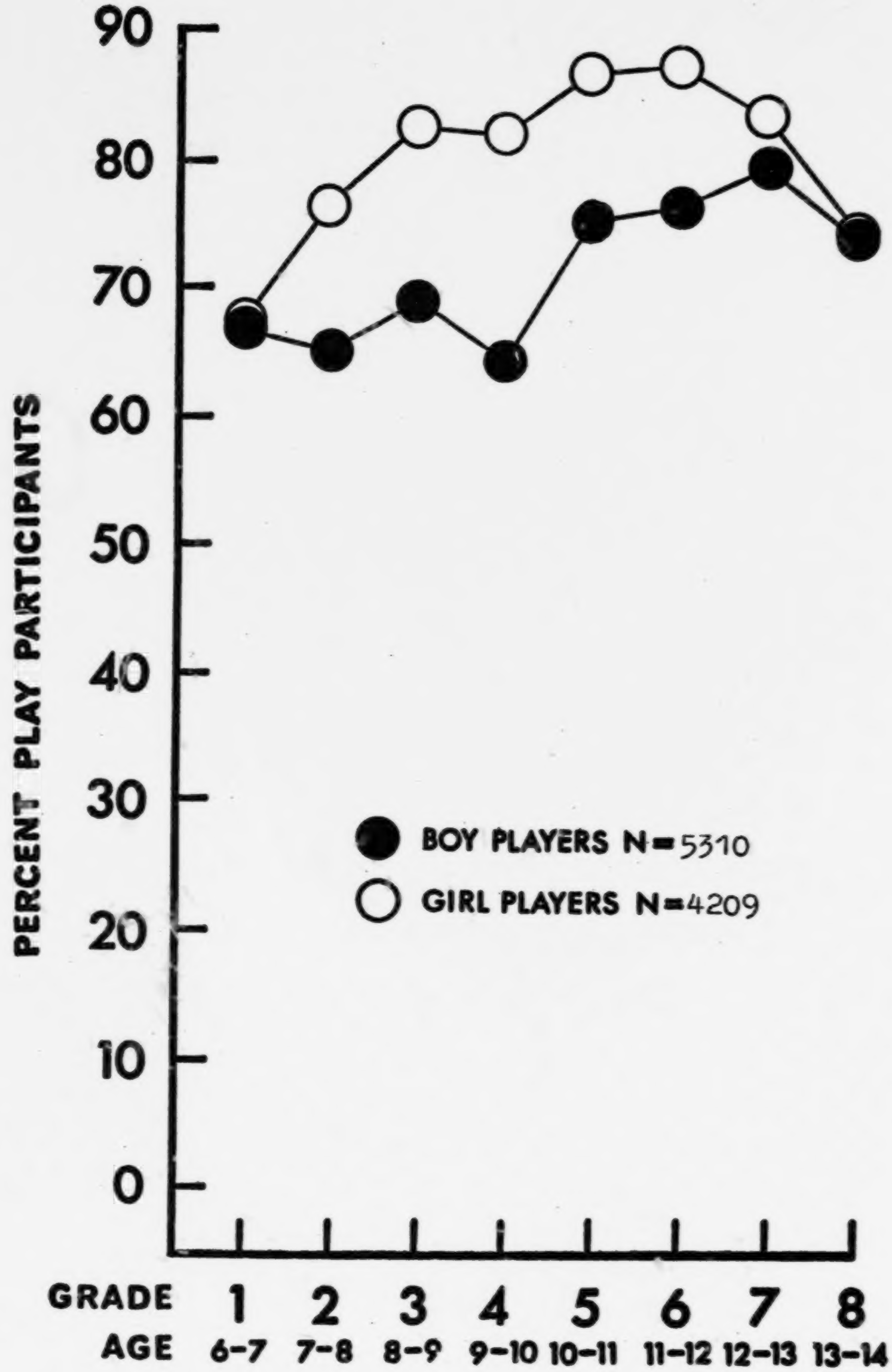


FIGURE 6
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN A HIGH-LEVEL SCHOOL, WHO PLAYED STRUCTURED GAMES OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

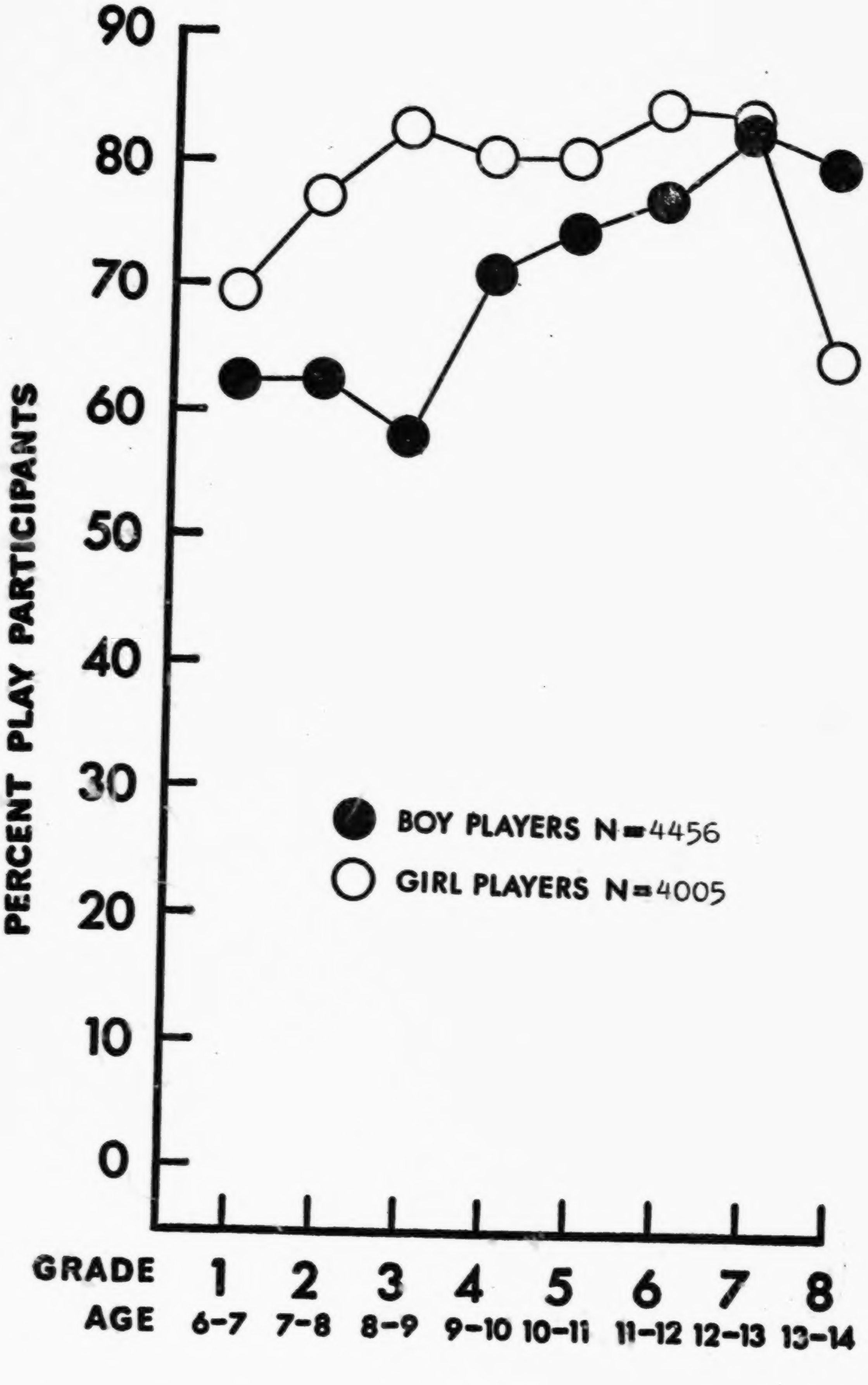


FIGURE 7
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN A LOW-LEVEL SCHOOL, WHO PLAYED STRUCTURED GAMES OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

TABLE 10

PERCENT OF PLAY PARTICIPANTS OF STRUCTURED GAMES OUT OF TOTAL NUMBER OF PLAYERS, BY GRADE AND SEX

		GRADE								
		1	2	3	4	5	6	7	8	TOTAL
N	BOYS	777	804	829	849	459	499	603	490	5310
	GIRLS	706	915	734	648	439	413	219	135	4209
	BOTH	1483	1719	1563	1497	898	912	822	625	9519
%	BOYS	67.10	65.58	69.37	64.22	75.49	76.53	79.66	74.13	70.06
	GIRLS	67.88	76.44	82.56	82.03	87.10	87.87	83.91	74.59	78.94
	BOTH	67.47	70.95	75.00	70.88	80.76	81.28	80.75	74.23	73.73
N	BOYS	322	572	512	721	949	498	524	358	4456
	GIRLS	378	554	563	972	805	436	242	55	4005
	BOTH	700	1126	1075	1693	1754	934	766	413	8461
%	BOYS	62.28	61.57	58.31	71.32	74.61	77.57	82.65	79.91	70.38
	GIRLS	69.87	77.48	82.79	80.07	81.07	84.66	84.03	64.71	79.61
	BOTH	66.16	68.49	69.00	76.09	77.44	80.73	83.08	77.49	74.47

THE LIFE-SPAN OF GAMES AND THEIR DIFFUSION*

Figure 8-16 (pp. 115 - 123)
Table 11/12 (pp. 124 - 125/6)

Every child knows the concept of game-in-season and few adults have any problem in pointing out at least a couple of games that fall into this category, such as hopscotch or jump rope. The stereotype about the nature of this kind of game is very commonly accepted: according to it, these games tend to appear suddenly in the playfield, quickly gain force and predominate in popularity over all other games, and then rather suddenly disappear again. It is generally believed that these games "blossom" every year around the same period.

Following our first stage data analysis we posed a number of questions (pp. 90-91) for the main stage, whose aim was to get reliable empirical information on this under-explored phenomenon.

A preliminary examination of our data was already sufficient to shatter to a considerable extent the prevalent conceptions about seasonal games. As can be seen from Figures 8-14, which show boys' and girls' seasonal games that appeared in our low-level Jerusalem school, there was no case in which the same seasonal game reappeared during the overlapping months of our two years of observation. Indeed, in the five schools examined in this respect, we have encountered only one case of partial recurrence of a seasonal game during the corresponding seasons in two successive years. Furthermore, some periodic games appeared in only one school, and those which appeared in more than one school did not in all cases do so during the same season. Moreover, certain games appeared in full force during two different seasons of the same year, others appeared in strength during one period, and sporadically at other times (see figures 8, 10, 11, and 14, for illustrations). We have also found that a game that appeared periodically in one school, appeared only sporadically in others. As we have already noticed in our first stage examination of one seasonal game (p. 90), the rate of acceptance of such a game is not necessarily quick, neither does it necessarily suddenly disappear, as popular conception has it. It may last one month or up to six months, and the curve of its rise and decline is not necessarily symmetrical.

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* This analysis was conducted jointly with Raya Kalinhoff, Giora Kronzon, Raanan Kulka and Amira Ravin, within the framework of a graduate research seminar on children's games.

These overview findings have led us to reject our preconceived notions about the possible existence of a constant and recurring game cycle (p. 90). We shall therefore drop the term "seasonal game" and use henceforth the term "periodic game" exclusively, meaning thereby a game that is played only during certain time stretches, but not necessarily in corresponding seasons of subsequent years. Such games may last for one to six months and within that period reach a peak of activity, remain there for a shorter or longer period and eventally drop out of fashion.

We tentatively distinguish periodic games from two other types of games observed: the supergames which are permanently present, even though there are fluctuations in the extent of their predominance in the playfield (two such games are variants of tag and of soccer, represented in Figures 15 and 16), and sporadic games, which appear only "sporadically" in the play scene.

In our efforts thus far to understand the phenomenon of periodicity in games, we have compared periodic games with the other types of games with regard to certain characteristics. For this purpose, we selected 18 periodic games and 18 non-periodic games and compared the frequency of occurence of these characteristics in both sets of games. Although the comparisons made thus far are only rough and tentative, we have found that of the 20 comparisons made, 16 showed significant differences on a χ^2 test:

In terms of general factors related to interaction amongst children, we have found that significantly more of the periodic games as compared with the others, are mainly played by boys only or girls only (Figures 8-11 as distinct from Figures 12-14). Since there is more communication between children of the same sex, this characteristic probably contributes to the diffusion of these games.

With regard to motivation to play, significantly more of the periodic games are characterized by a defined final outcome of winning or losing, and winning is more frequently associated in them with material gain. The challenge of all-out competition and the promise of material gain are, presumably, features that contribute to an increase in popularity of games.

As to characteristics related to *interaction between play participants*, significantly more of the periodic games are of the kind *played sequentially*, by *individual children* (first one child, then another, etc.), and *played independently* (the behavior of one child not directly affecting the subsequent behavior of the others).

These features also suggest as has,indeed,been verified, that significantly more of these games *can also be played solitarily*. Combining this factor with the finding that in more such games there is *an opportunity for developing specific skills*, it may be concluded that they provide, more often than other games, an opportunity for self-improvement by training and thus the challenge and attraction necessary for free play to occur. But the challenge lasts only for a while: many of the very same features that make for diffusion and attractiveness at first, are probably causes of the game's decline: after a period of training and repeated *competition between individual children*, which is characteristic of periodic games, *a hierarchy of players* is established which, naturally, leads to a decline in the challenge of playing with many of the original potential competitors. Moreover, many of the poorer players will now decline playing with their obvious superiors, for fear of *material loss*. It is probably for this reason that we find *more variants of the same game* amongst the periodic games since, for a while, variants provide additional opportunities. It would follow that variants would not be as frequent at the first appearance of a periodic game as at the peak of play or when decline has started. This hypothesis has not yet been examined.

From this preliminary look at the data it is already possible to arrive at certain features that are likely to characterize supergames, which remain constantly "above water" -- such as lack of material gain, or difficulty in predicting the outcome of the game. This difficulty is typical to games of chance (which are, however, often associated with material gain), or to competitive games of groups whose composition can be varied. Similarly, it is likely that sporadic games will be burdened with features that would impede diffusion, provide little opportunity for developing skills, or have rather predictable outcomes. A more detailed analysis of these features still remains to be done.

We have seen that one and the same game will sometimes exhibit all the distinguishing features of a periodic game; but at other times exhibit "sporadic" features. The difference, we suggest, should be looked for in the play-scene. We predict that a periodic game has a greater chance of being accepted, when introduced during a period of relative slackness in the play activities of the appropriate school and age group. Such slackness might, for instance, result from the decline of another periodic game. This prediction gains support from the data presented in Figures 8-11 and 12-14, in which it may be seen that one periodic game begins its rise only after the preceding periodic game is well on its road to extinction. (It is interesting to note thatthis regularity is revealed separately and independently in boys' and girls' games.) Extending this approach, we would expect that the agent of the innovation will only be effective if he (or she) introduces the new game at a time when the play-scene is relatively slack. A complementary hypothesis is that periodic games which have been observed to appear without rising to their potential peak had been introduced at a time when general play activity was at or above average, in other words, when the play scene was too satiated to accept them. These predictions can be tested by examining the relative percent of play participants on occasions when periodic games have gained force as compared with occasions on which they stalled.

The idea of a constant and recurring game cycle had to be abandoned in face of the facts. It is, however, still possible that a less rigid type of regularity might reveal itself in the chain of periodic games. We assume, that in order that a periodic game appear and gain strength, two necessary conditions must obtain: the children must be relatively uninvolved in playing when this game is introduced, and the game must have been out of circulation for a long enough time to acquire a renewed appeal. Given these two conditions, the game actually introduced may be related to such factors as weather (warming-up games in winter), the fruit of the season (apricot-pit games during the apricot season), and the networks of communication between children (geographic proximity or socio-economic level). We should not, therefore, be surprised to discover some overlap in recurrence of the same game in successive years, and indeed, one of the analyses that remain to be done is to determine the relative importance of these secondary factors in the reappearance of a game. Here it may be particularly revealing to examine those cases, if any, in which more than one periodic game has been introduced simultaneously, and see whether underthose circumstances, one of them, and which of them, was accepted; The personalities of the agents who introduce the game might be the determining factor. Controlled field experiments in planting new games and in introducing changes in existing sporadic games that will turn them into periodic games will offer final tests for our conclusions.

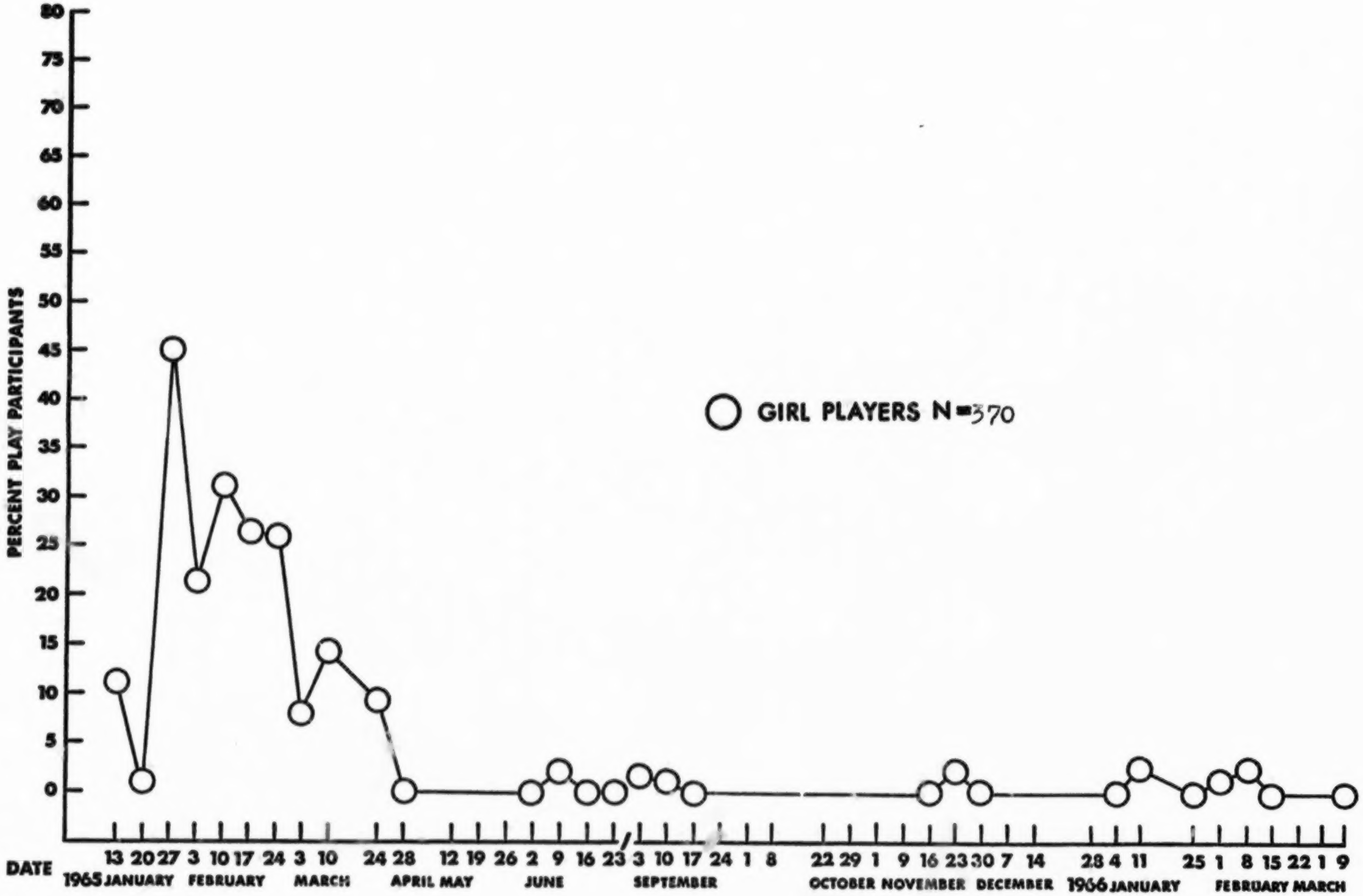

FIGURE 8
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF HAND CLAPPING AND COORDINATION GAMES OUT OF THE TOTAL NUMBER OF GIRL PLAYERS, ON EACH DAY OF OBSERVATION

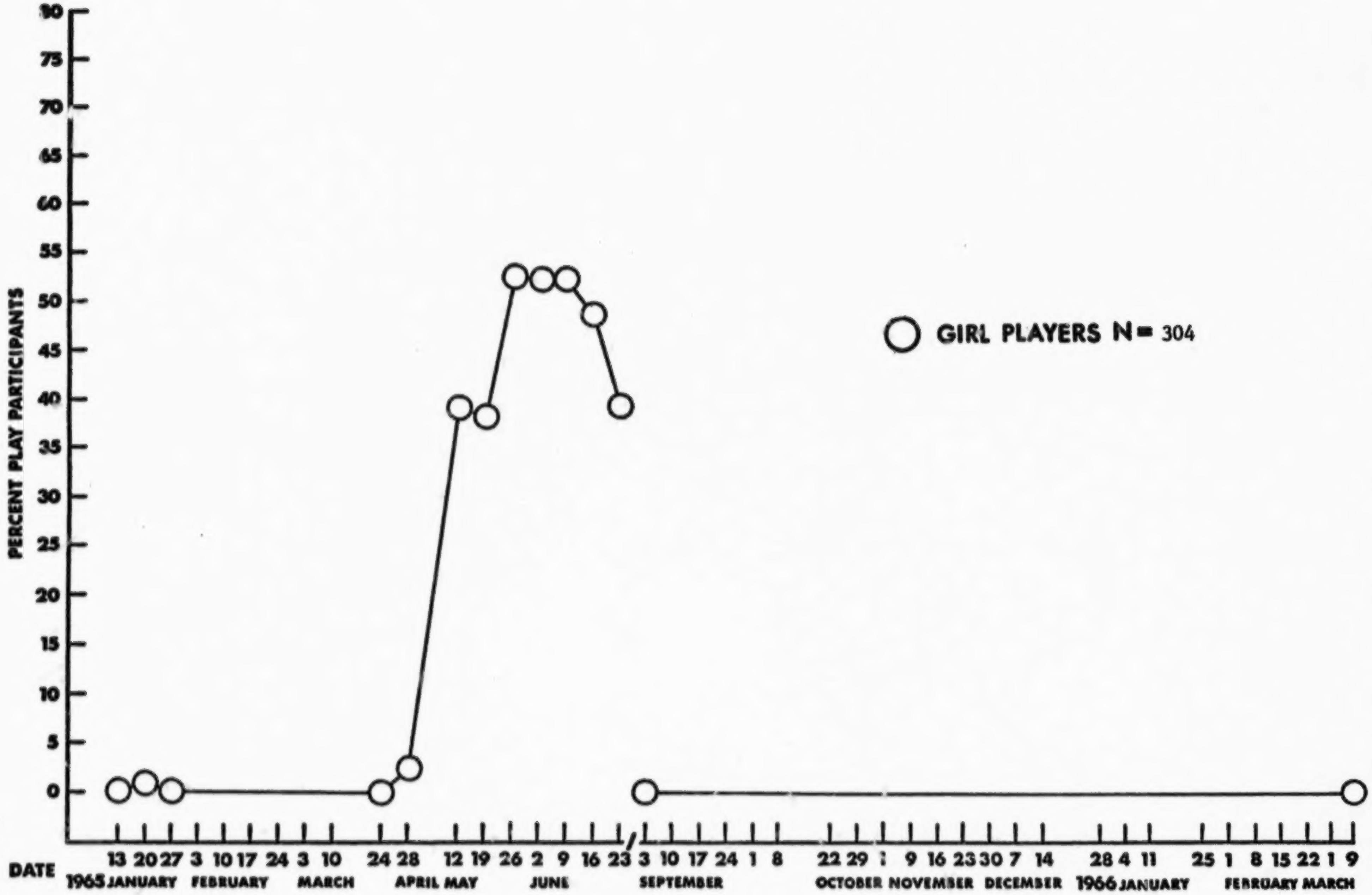

FIGURE 9

PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF JACKS (FIVE STONES) OUT OF THE TOTAL NUMBER OF GIRL PLAYERS, ON EACH DAY OF OBSERVATION

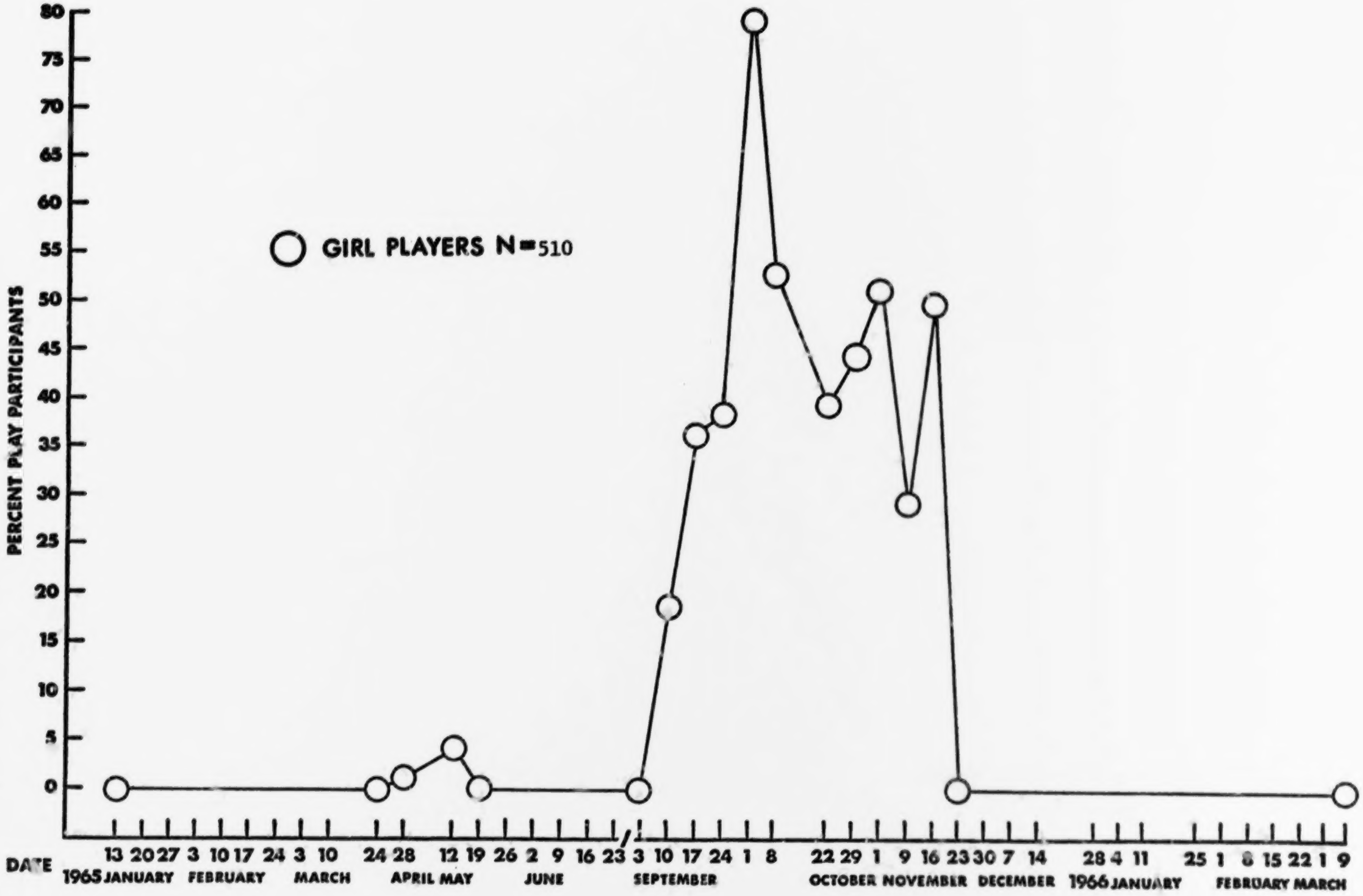

FIGURE 10
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF JUMP ROPE OUT OF THE TOTAL NUMBER OF GIRL PLAYERS, ON EACH DAY OF OBSERVATION

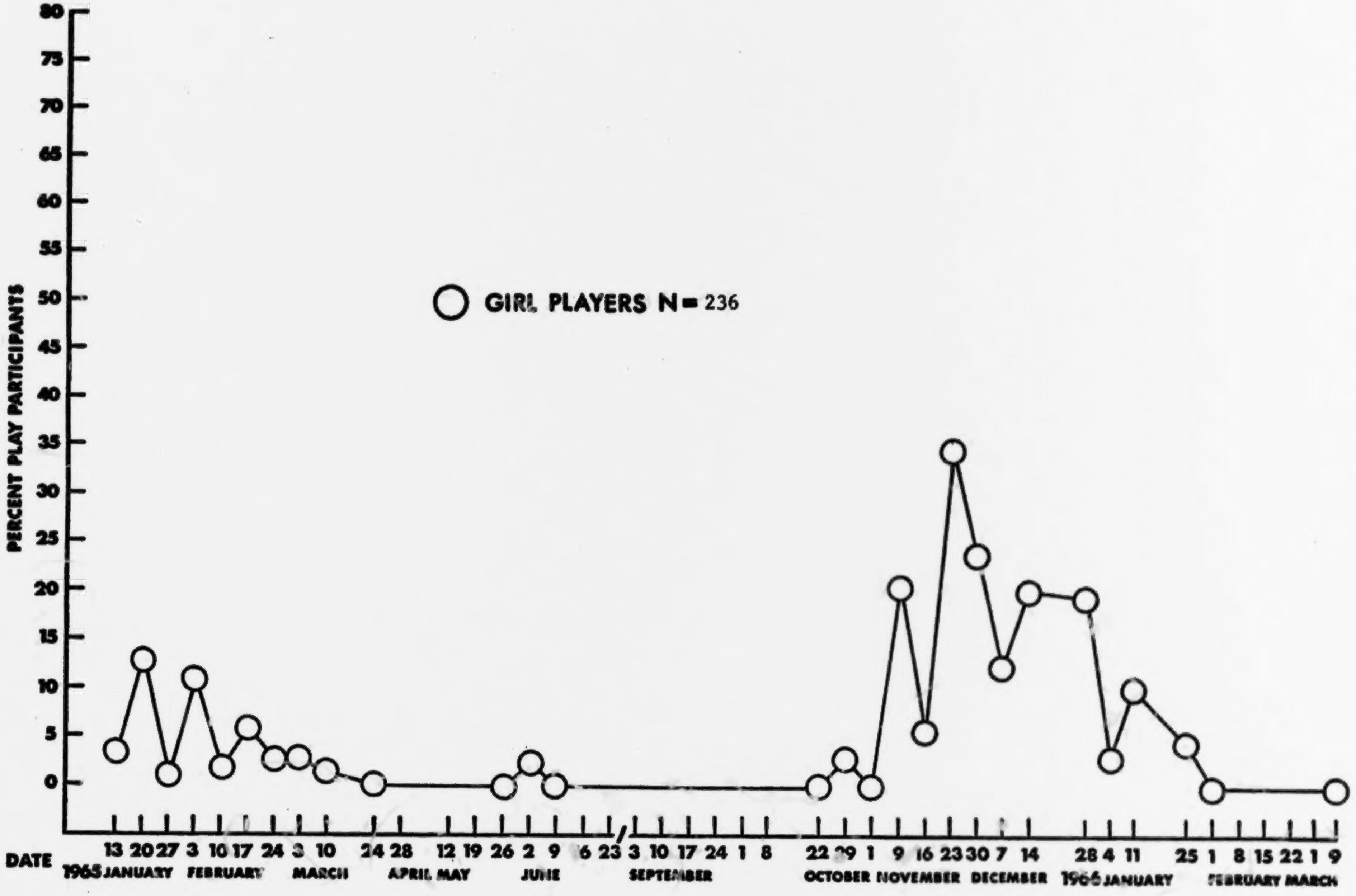

FIGURE 11
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF HOPSCOTCH OUT OF THE TOTAL NUMBER OF GIRL PLAYERS, ON EACH DAY OF OBSERVATION

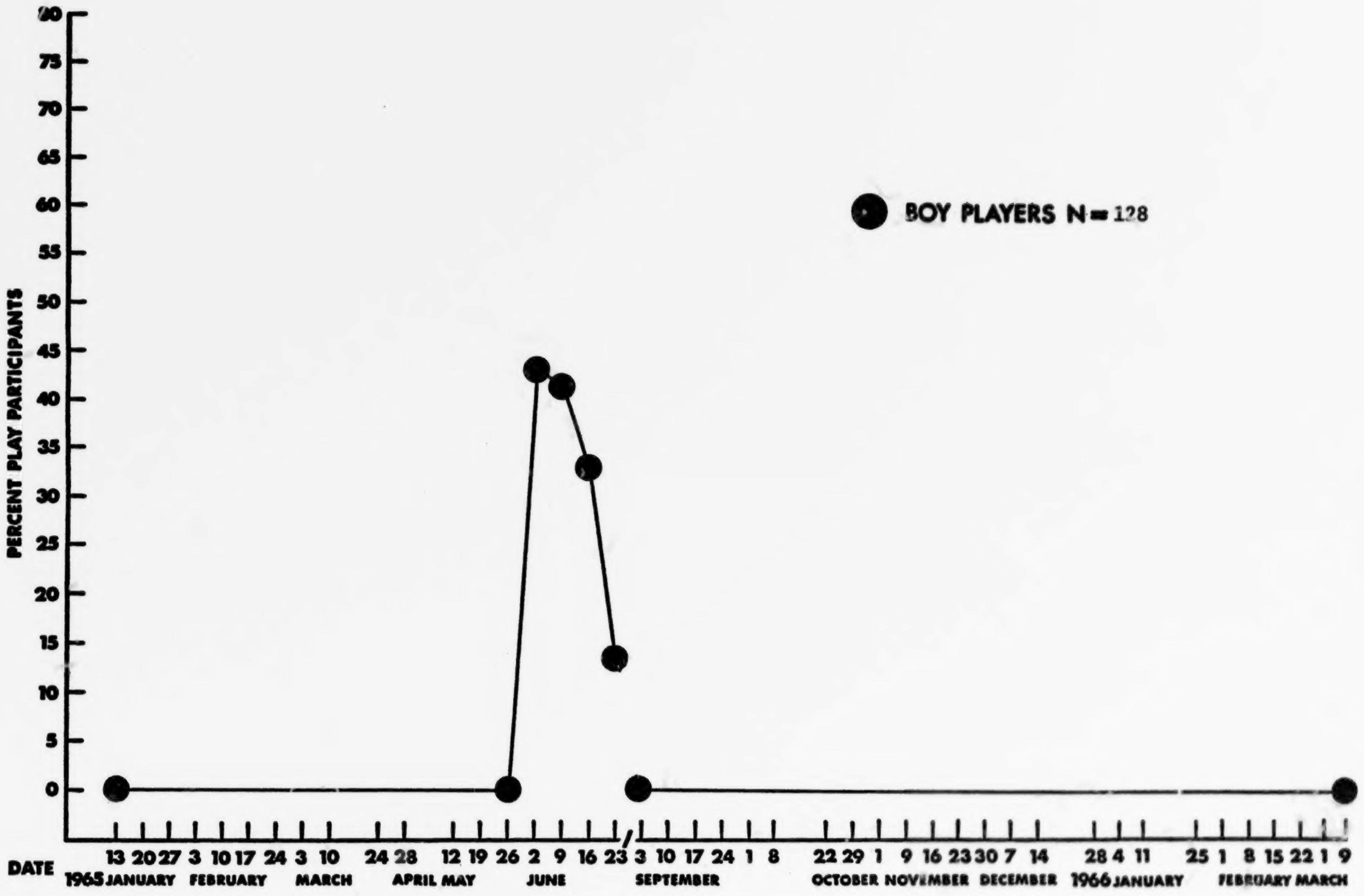

FIGURE 12
PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF APRICOT-PIT ("AJU") GAMES OUT OF THE TOTAL NUMBER OF BOY PLAYERS, ON EACH DAY OF OBSERVATION

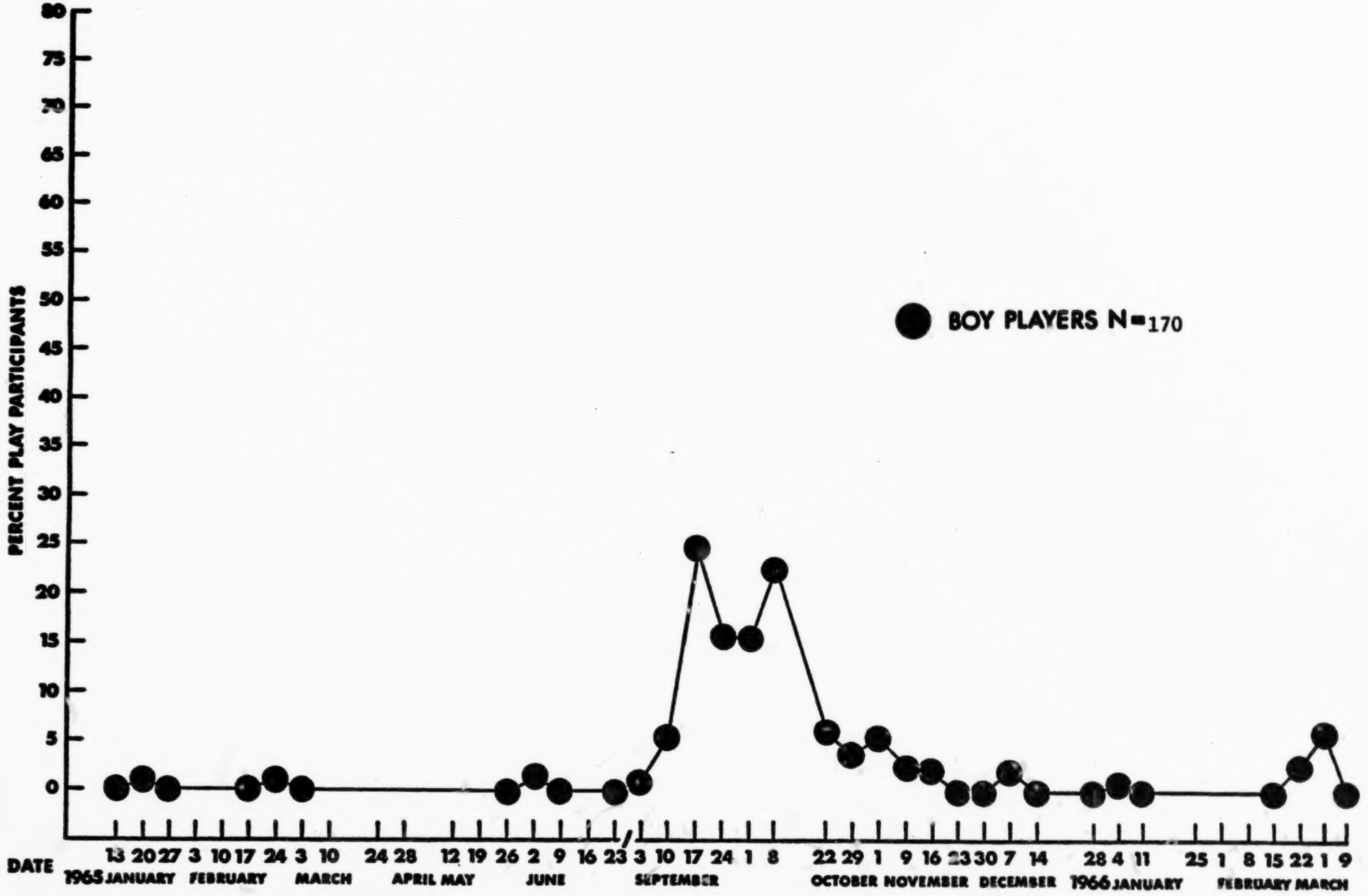

FIGURE 13
PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF MARBLE GAMES OUT OF THE TOTAL NUMBER OF BOY PLAYERS, ON EACH DAY OF OBSERVATION

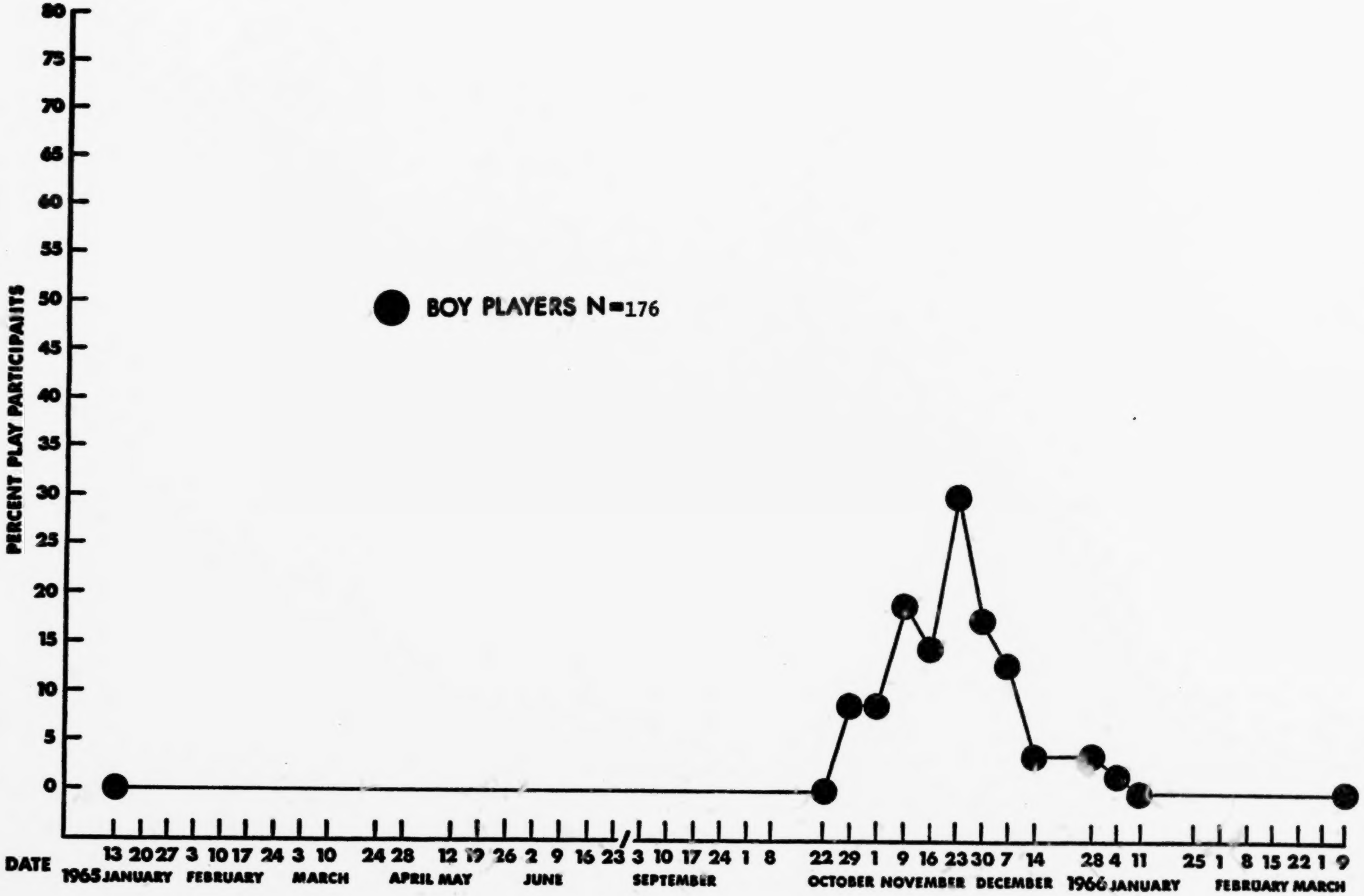

FIGURE 14
PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF TOPS OUT OF THE TOTAL NUMBER OF BOY PLAYERS, ON EACH DAY OF OBSERVATION

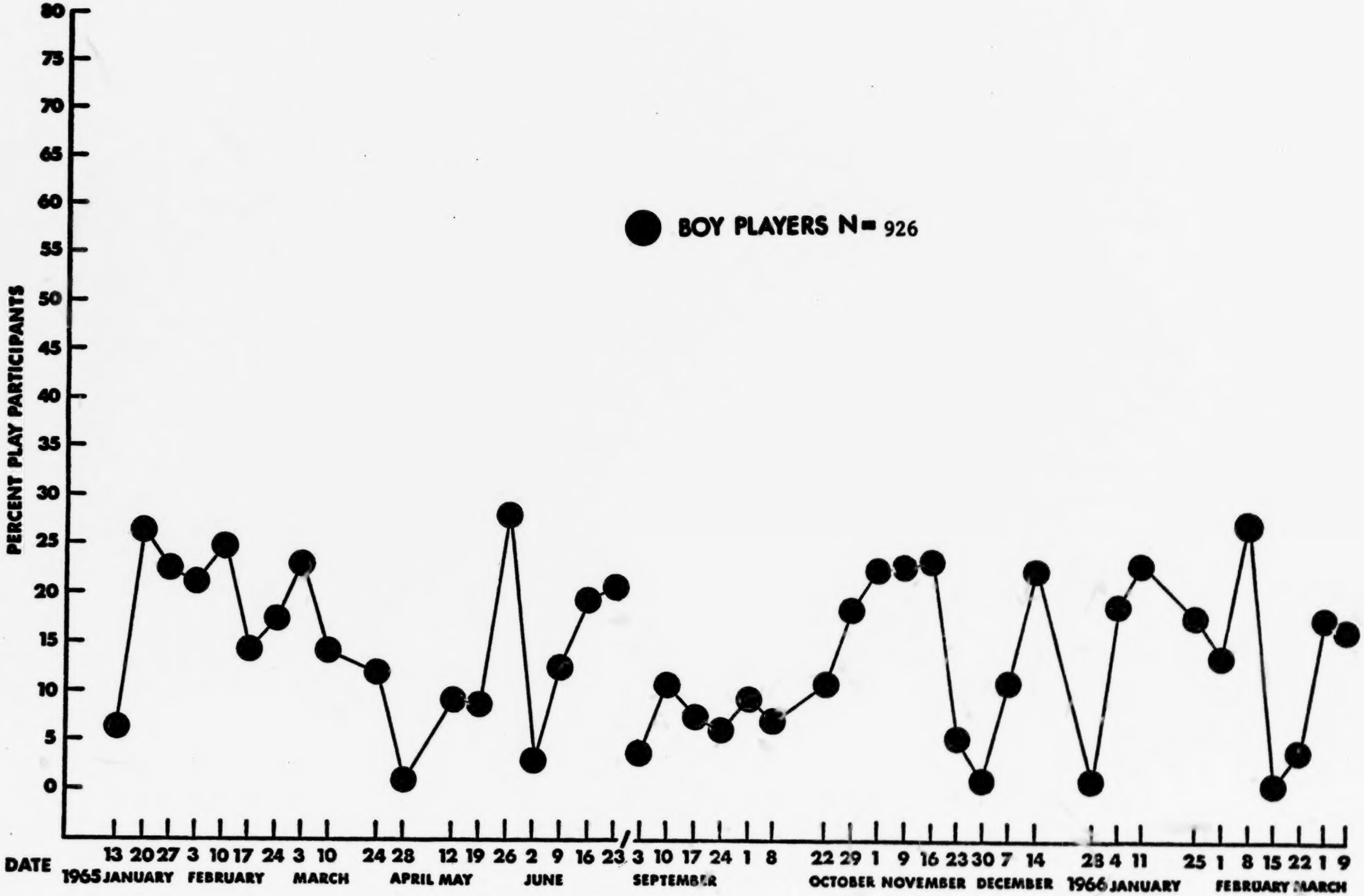

FIGURE 15

PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF SOCCER OUT OF THE TOTAL NUMBER OF BOY PLAYERS, ON EACH DAY OF OBSERVATION

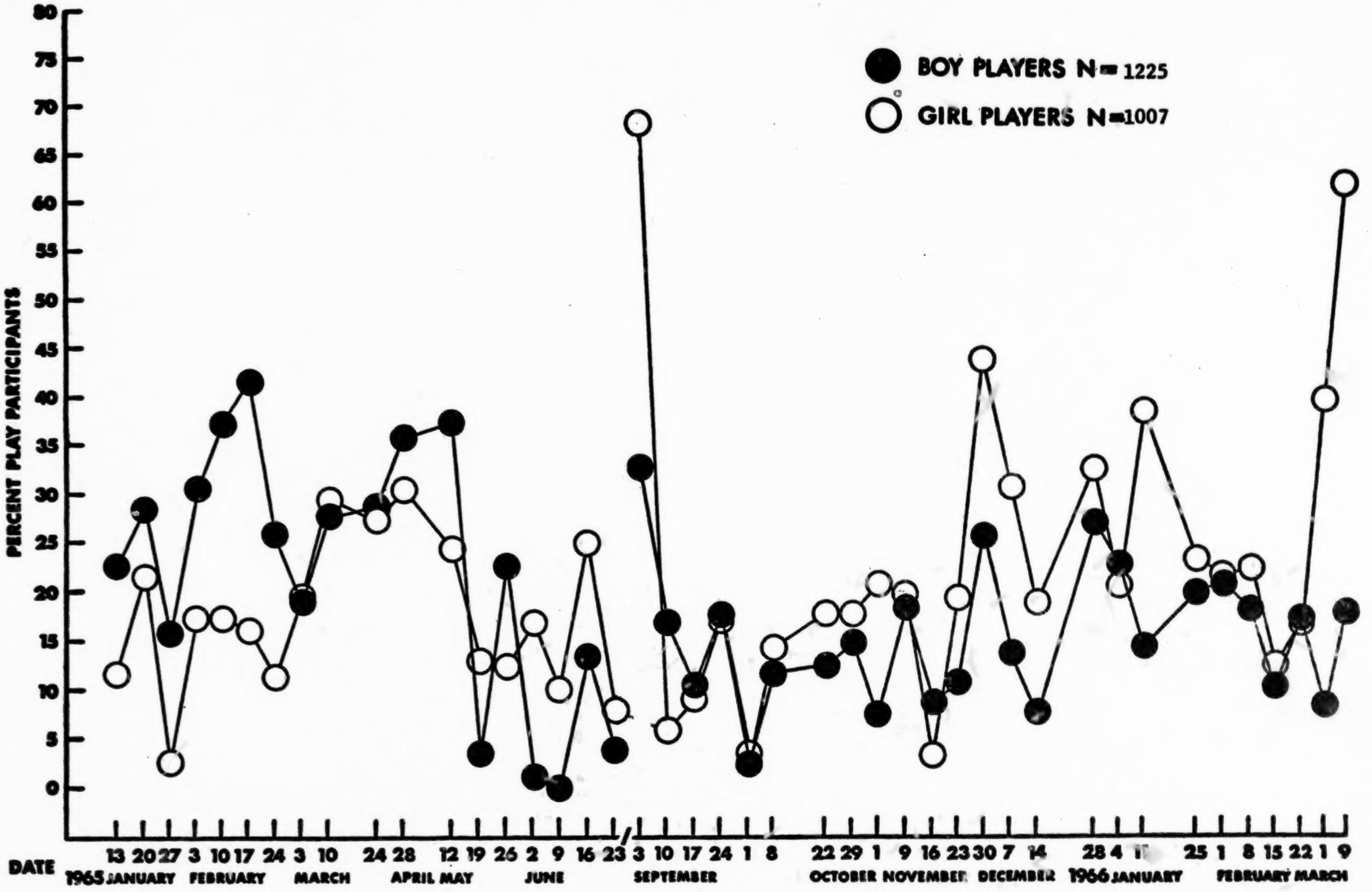

FIGURE 16

PERCENT OF BOY PLAYERS AND GIRL PLAYERS WHO PLAYED VARIANTS OF T A G OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS, ON EACH DAY OF OBSERVATION

TABLE 11/12

NUMBER AND PERCENT OF (A) GIRLS AND (B) BOYS WHO PARTICIPATED IN PLAY IN SPECIFIED PERIODIC GAMES AND SUPERGAMES

A. GIRLS

DATE			PERIODIC GAMES								SUPERGAME	
			HAND CLAPPING		FIVE STONES		JUMP ROPE		HOP-SCOTCH		TAG	
			N	%	N	%	N	%	N	%	N	%
1965	JAN.	13	16	11.27					5	3.52	16	11.27
		20	2	1.32	2	1.32			20	13.16	33	21.71
		27	107	45.15					4	1.69	6	2.53
	FEB.	3	46	21.50					24	11.21	37	17.29
		10	61	31.61					4	2.07	33	17.10
		17	57	26.39					11	5.09	34	15.74
		24	28	25.93					3	2.78	12	11.11
	MARCH	3	13	7.93					5	3.05	32	19.51
		10	16	14.16					2	1.77	33	29.20
		24	10	9.35							29	27.10
	APRIL	28			4	2.76	2	1.38			44	30.34
	MAY	12			47	39.17	5	4.17			29	24.17
		19			21	38.18					7	12.73
		26			51	52.58					12	12.37
	JUNE	2			47	52.22			2	2.22	15	16.67
		9	2	2.22	47	52.22					9	10.00
		16			51	48.57					26	24.76
		23			34	39.08					7	8.05
	SEPT.	3	2	2.13							64	68.09
		10	2	1.36							8	5.44
		17					27	18.37			8	8.89
		24					33	36.67			21	17.21
	OCT.	1					47	38.52			3	3.41
		8					70	79.55			17	14.53
		22					62	52.99			21	17.36
		29					48	39.67			24	17.27
	NOV.	1					62	44.60	4	2.88	28	20.29
		9					71	51.45			20	19.61
		16					30	29.41	21	20.59	4	3.28
		23	2	2.41			61	50.00	7	5.74	16	19.28
		30	2	2.41					29	34.94	60	43.80
	DEC.	7							32	23.36	37	30.58
		14							15	12.40	14	18.67
		28							15	20.00	27	32.53
1966	JAN.	4							16	19.28	27	20.15
		11	2	2.86					4	2.99	27	38.57
		25							7	10.00	33	23.08
	FEB.	1	2	1.79					6	4.20	24	21.43
		8	2	2.74							16	21.92
		15									11	12.64
		22									9	17.31
	MARCH	1									28	39.44
		9									46	61.33

TABLE 11/12, CONTINUATION

B. BOYS

DATE			PERIODIC GAMES						SUPER GAMES			
			APRICOT PITS		MARBLES		TOPS		SOCCER		TAG	
			N	%	N	%	N	%	N	%	N	%
1965	JAN.	13							11	6.40	39	22.67
		20			2	1.12			47	26.40	51	28.65
		27							39	22.41	27	15.52
	FEB.	3							40	21.16	58	30.69
		10							41	24.70	62	37.35
		17							22	14.29	64	41.56
		24			3	1.50			35	17.50	51	25.50
	MARCH	3							37	23.13	31	19.38
		10							22	14.19	42	27.10
		24							20	11.98	48	28.74
	APRIL	28							2	1.34	53	35.57
	MAY	12							13	8.97	54	37.24
		19							5	8.77	2	3.51
		26							40	27.78	32	22.22
	JUNE	2	44	43.14	2	1.96			3	2.94	1	0.98
		9	40	41.67					12	12.50	0	0.00
		16	27	30.34					17	19.10	12	13.48
		23	17	13.60					26	20.80	5	4.00
	SEP.	3			4	2.13			7	3.72	62	32.98
		10			8	5.48			16	10.96	24	32.98
		17			31	24.60			9	7.14	13	10.32
		24			25	16.03			10	6.41	27	17.31
	OCT.	1			15	15.62			9	9.37	2	2.08
		8			32	22.54			10	7.04	17	11.97
		22			10	6.21			18	11.18	20	12.42
		29			6	3.53	15	8.82	31	18.24	25	14.71
	NOV.	1			7	5.07	12	8.70	31	22.46	10	7.25
		9			3	2.46	23	18.85	28	22.95	22	18.03
		16			3	2.21	20	14.70	32	23.53	12	8.82
		23					34	30.60	6	5.36	12	10.71
		30					31	17.42	3	1.69	45	25.28
	DEC.	7			4	1.98	26	12.87	23	11.39	28	13.86
		14					7	3.52	44	22.45	15	7.65
		28					4	2.99	2	1.49	36	26.87
1966	JAN.	4			2	1.02	4	2.03	37	18.78	44	22.34
		11							34	23.45	21	14.48
		25							37	17.96	40	19.42
	FEB.	1							20	13.79	30	20.69
		8							39	27.27	26	18.18
		15							2	2.02	10	10.10
		22			4	2.84			6	4.26	25	17.73
	MARCH	1			9	6.12			26	17.69	12	8.16
		9							14	16.87	15	18.07

PREDOMINANT GAMES IN TWO SCHOOLS

Figures 17-30 (pp. 129-142)
Tables 13-14 (pp. 127; 143-144)

222 different structured games were recorded in a Jerusalem high-level school, and 168 in a Jerusalem low-level school. 72 of these games were common to both schools.

The games were classified into broad categories, determined by similarities in their general set-up. In many cases, these similarities are reflected in the names of the games, but this is not always the case. Thus, amongst over 20 varieties of tag, we have encountered names such as "tickle tag", "colours tag", "poles tag", "redeemers tag", but also "witch", "old grandpa" and "alarm clock". (These represent different variants of the game, and not simply different names by which the same game is known.)

Figures 17-30 and Table 13 present the ten most frequently played classes of games out of the total of 56 classes of games played in one or both of the two schools. Six of these classes were amongst the first ten in both schools, and tag was the most predominant in both the high-level and the low-level school. "Tops", which was eighth in predominance in the low-level school, was not recorded at all in the high-level school, while the game-class representing games which are combinations of hide-and-seek and tag, was fifth in predominance in the high-level school but not represented at all in the low-level school. The following Table 13 presents the ten most frequently played classes of games in the two schools, in order of predominance.

TABLE 13
TEN MOST FREQUENTLY PLAYED CLASSES OF GAMES IN ONE HIGH-LEVEL AND ONE LOW-LEVEL SCHOOL

High-level School	Low-level School
Variants of:	Variants of:
1. Tag	1. Tag
2. Jump rope	2. Soccer
3. Basketball	3. Dances
4. Soccer	4. Jump rope
5. Hide-and-seek-tag	5. Jacks (five stones)
6. Japanese Elastic (Gummi)	6. Clapping hands+coordination
7. Apricot pits	7. Hopscotch
8. Leap-frog	8. Tops
9. Clapping hands+coordination	9. Leap-frog
10. Dances	10. Marbles

For games played mainly by one sex, Figures 17-30 record only the players of the predominant sex. It may be seen that in most cases, the data of the two schools correspond in this respect. There is also considerable correspondence between the schools with respect to the age range and age predominance in the different classes of games. These aspects of the data will be discussed in the following sections, Boys and Girls Playing Together and Apart, and Age Groups Playing Together and Apart.

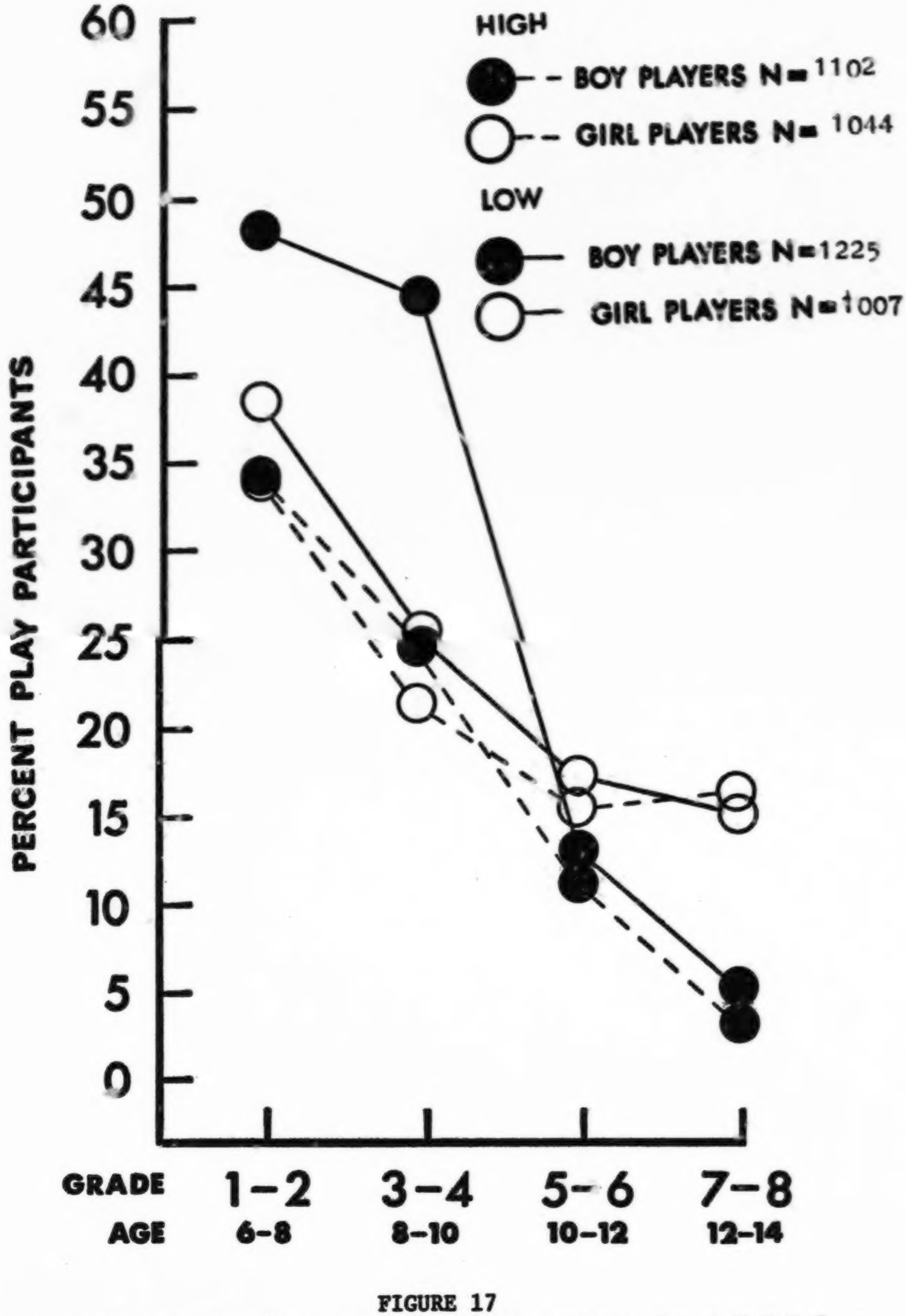

FIGURE 17
PERCENT OF BOY PLAYERS AND GIRL PLAYERS OF VARIANTS OF TAG IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH PAIR OF GRADES, SEPARATELY FOR EACH SEX

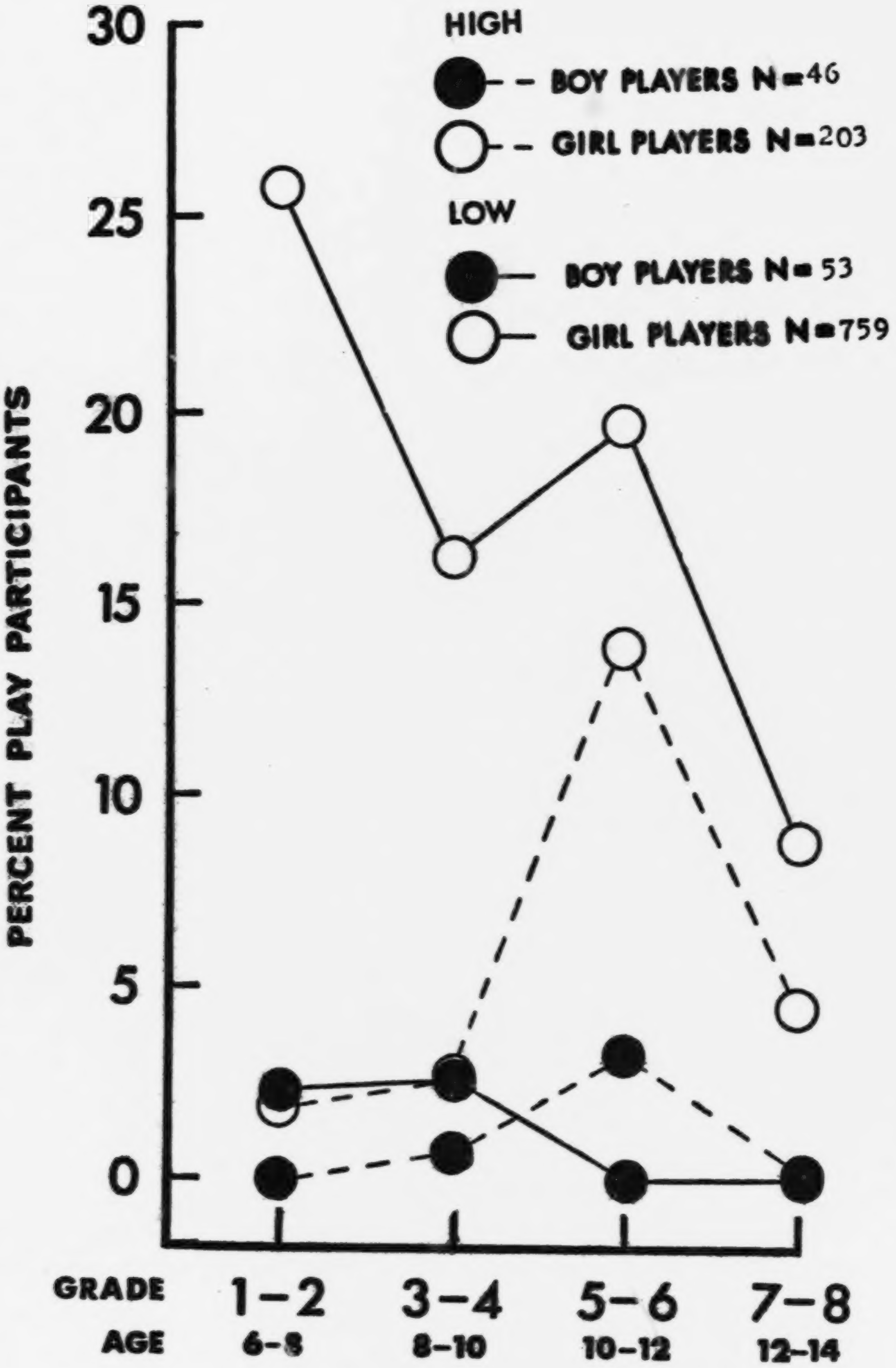

FIGURE 18
PERCENT BOY PLAYERS AND GIRL PLAYERS WHO DANCED IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH PAI OF GRADES, SEPARATELY FOR EACH SEX

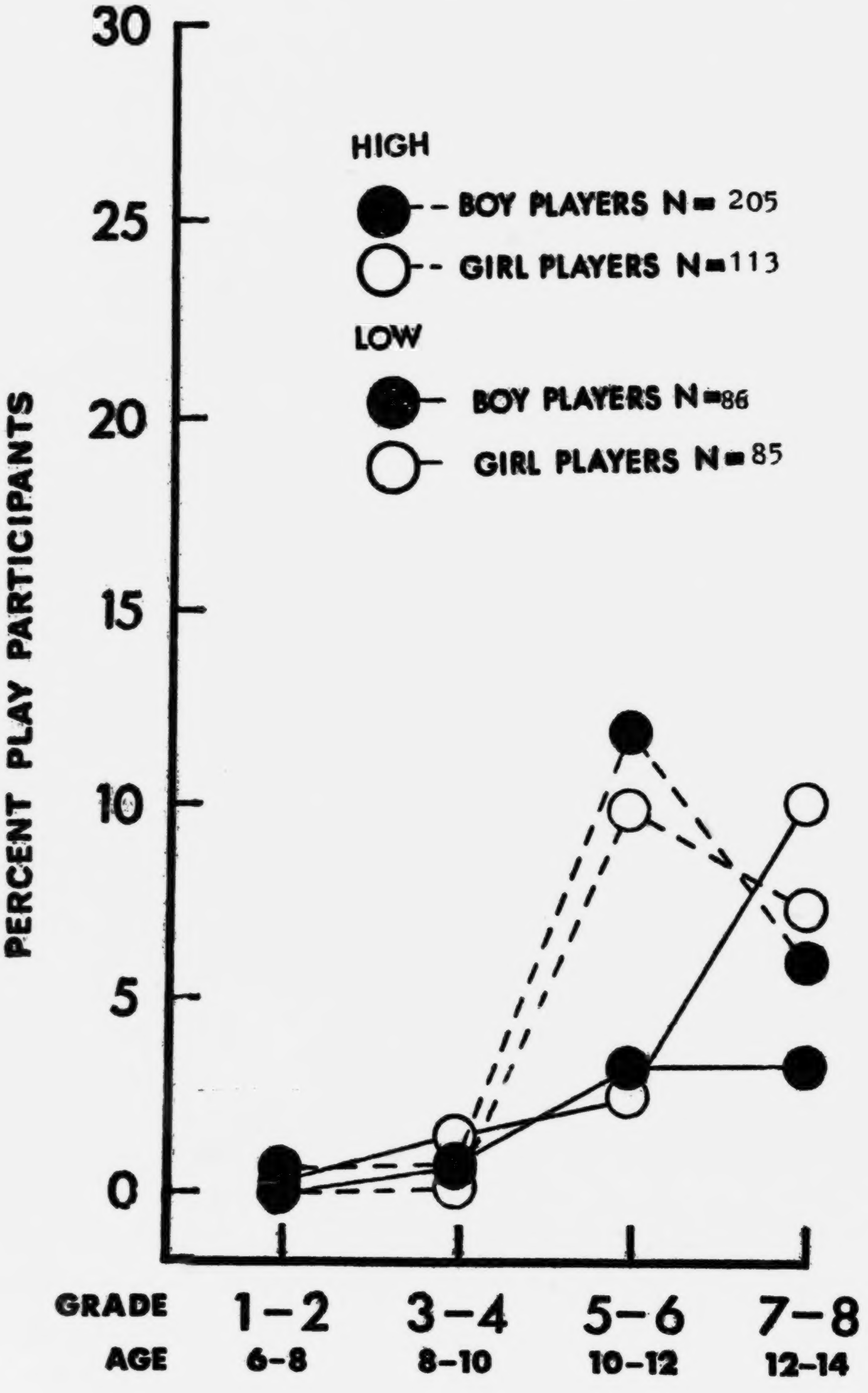

FIGURE 19
PERCENT OF BOY PLAYERS AND GIRL PLAYERS OF VARIANTS OF LEAP-FROG IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH PAIR OF GRADES, SEPARATELY FOR EACH SEX

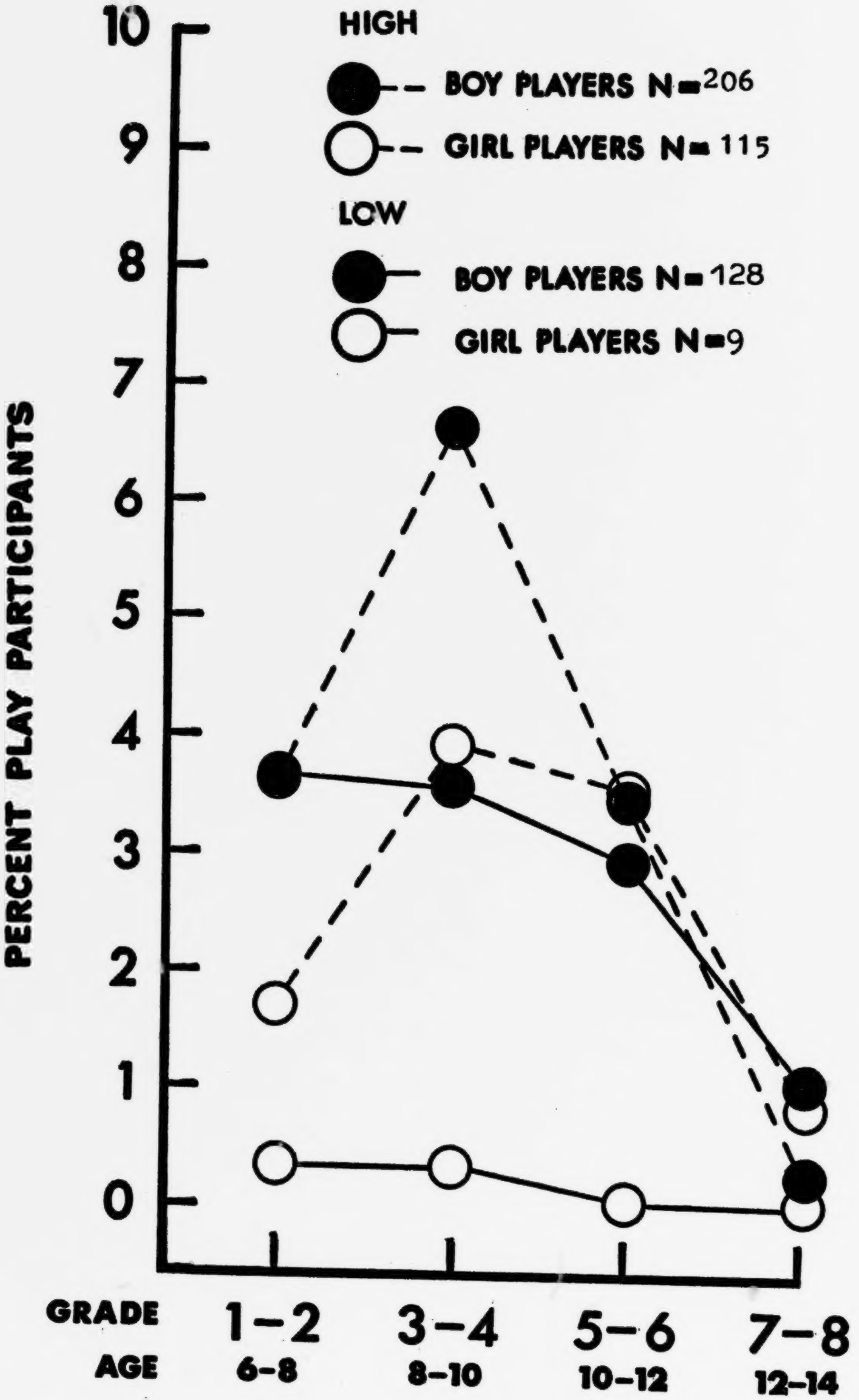

FIGURE 20
PERCENT OF BOY PLAYERS AND GIRL PLAYERS OF VARIANTS OF APRICOT-PIT GAMES ("AJU") IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH PAIR OF GRADES, SEPARATELY FOR EACH SEX

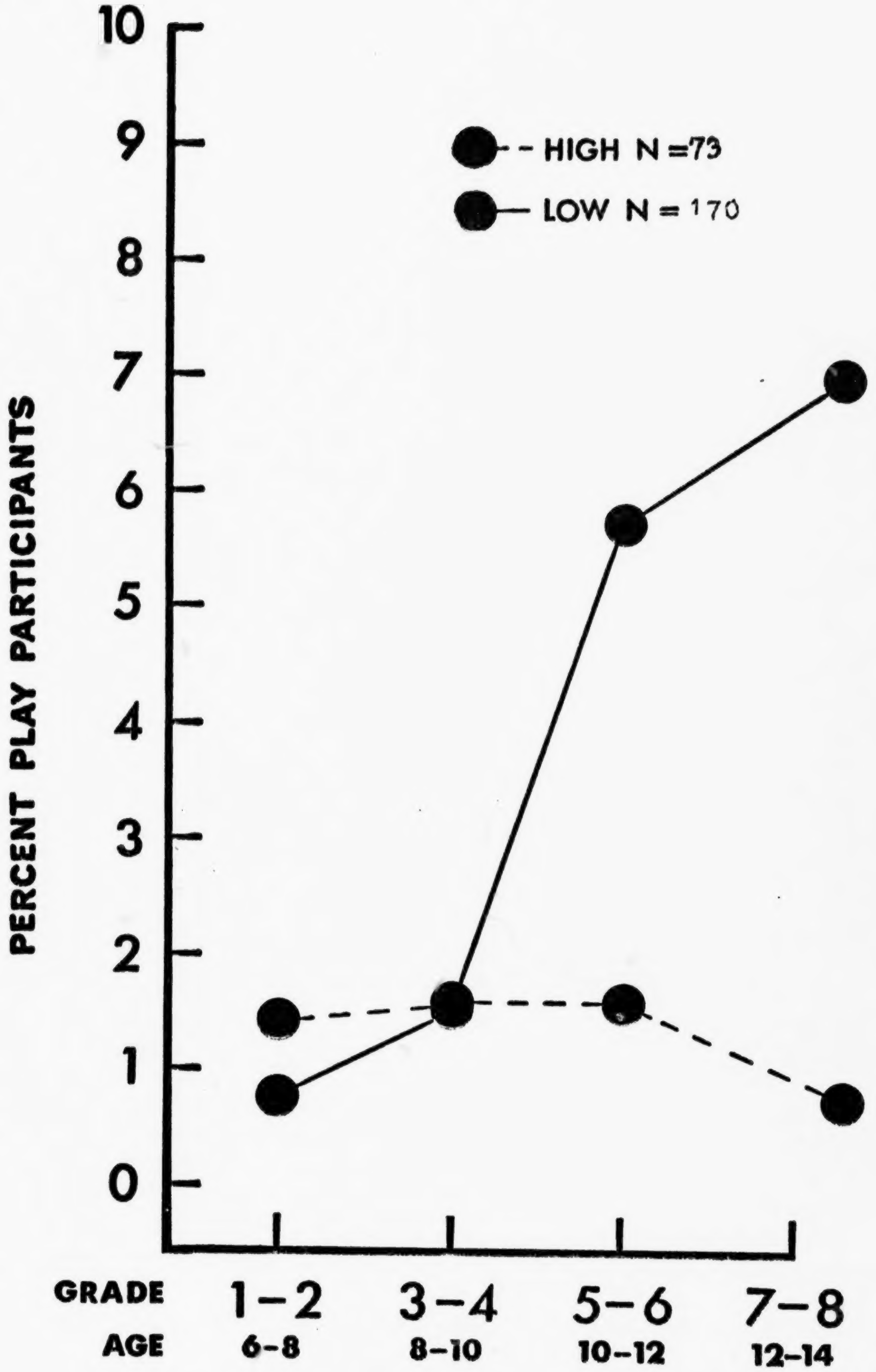

FIGURE 21
PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF MARBLE GAMES IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF BOY PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

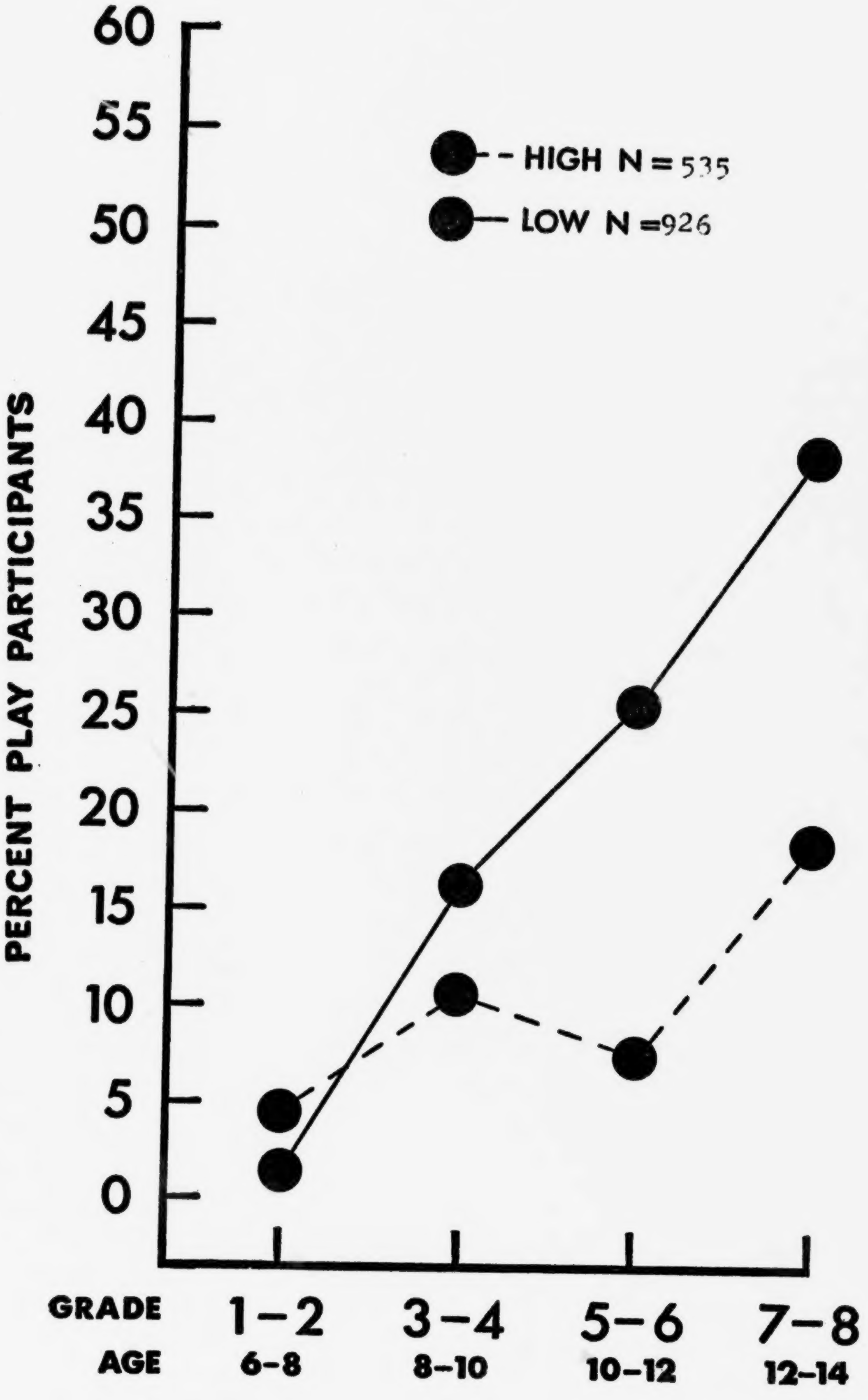

FIGURE 22
PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF SOCCER IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF BOY PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

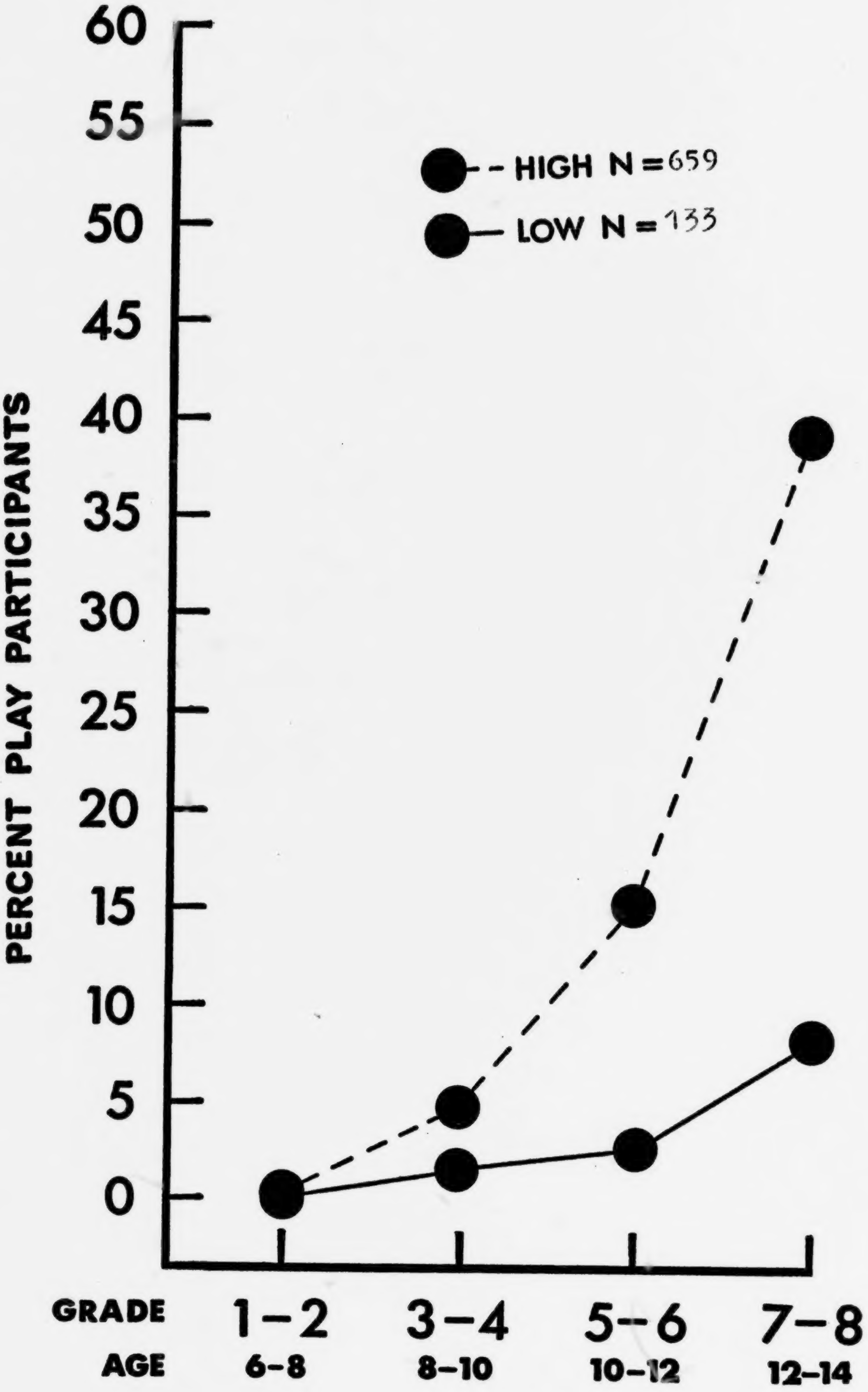

FIGURE 23
PERCENT OF BOY PLAYERS WHO PLAYED VARIANTS OF BASKET BALL IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF BOY PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

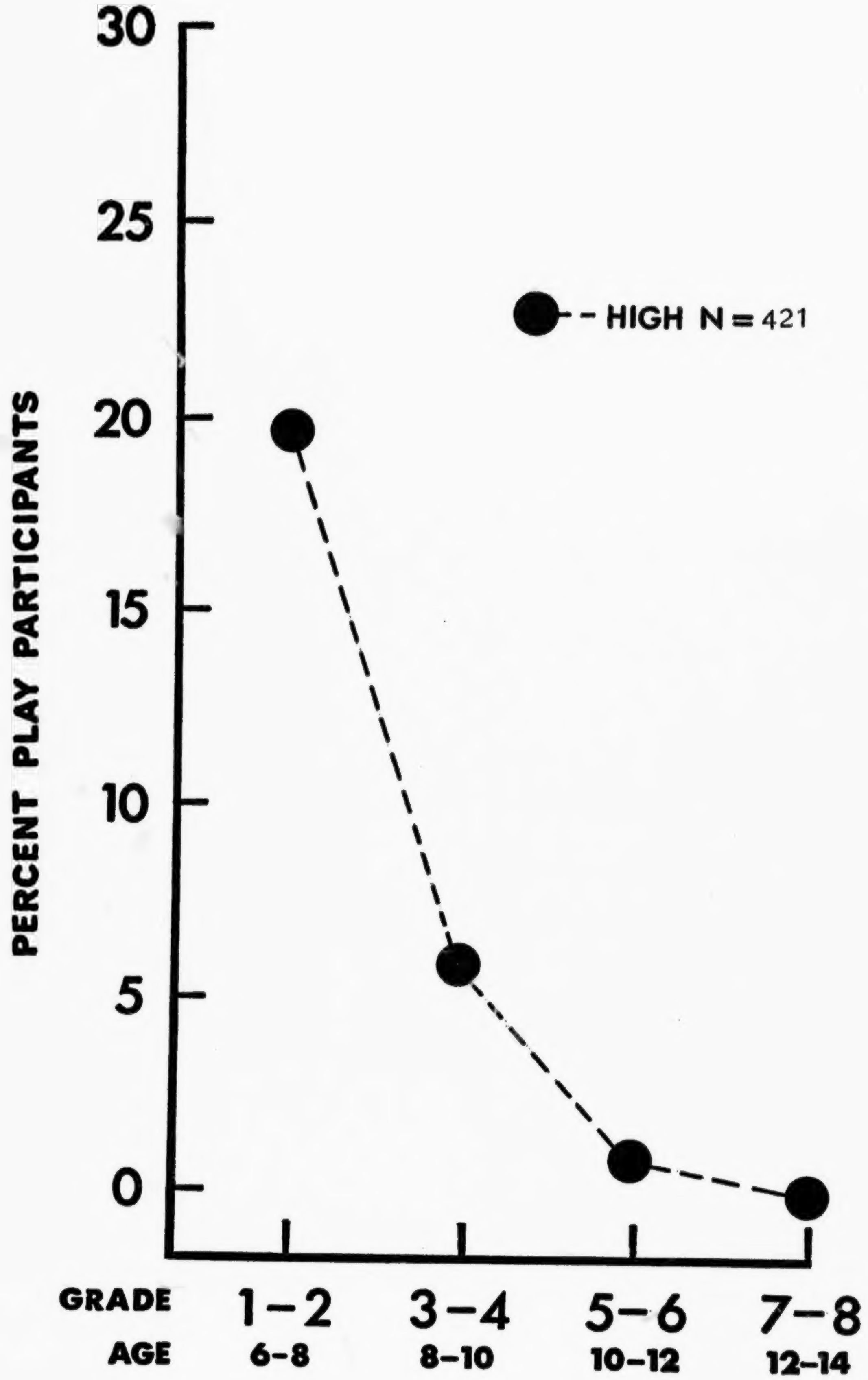

FIGURE 24
PERCENT OF BOY PLAYERS IN A HIGH-LEVEL SCHOOL WHO PLAYED GAMES WHICH ARE COMBINATIONS OF HIDE-AND-SEEK AND TAG IN PAIRS OF SUCCESSIVE GRADES, OUT OF THE TOTAL NUMBER OF BOY PLAYERS OF STRUCTURED GAMES IN EACH PAIR OF GRADES

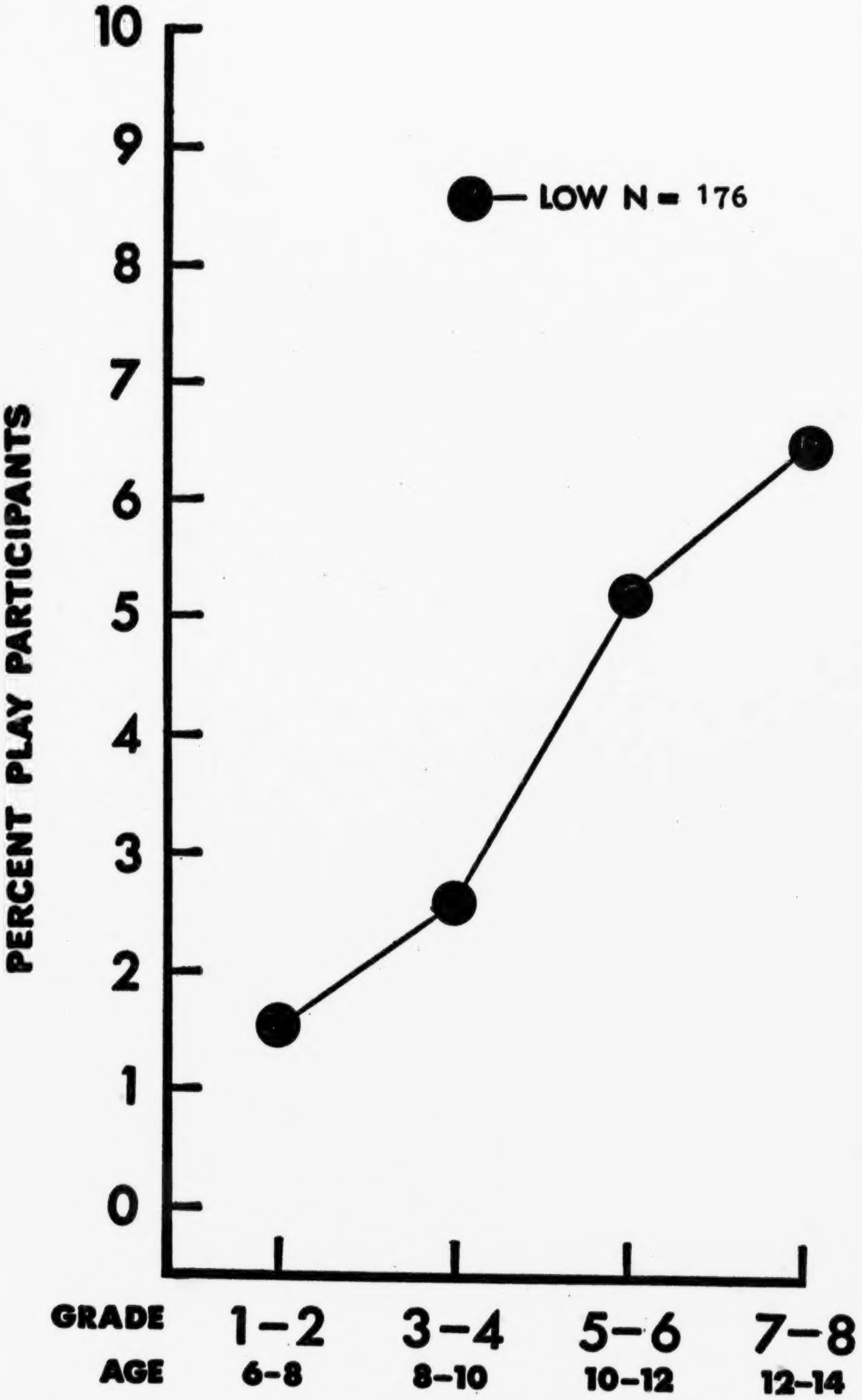

FIGURE 25
PERCENT OF BOY PLAYERS IN A LOW-LEVEL SCHOOL WHO PLAYED VARIANTS OF TOPS IN PAIRS OF SUCCESSIVE GRADES, OUT OF THE TOTAL NUMBER OF BOY PLAYERS OF STRUCTURED GAMES IN EACH PAIR OF GRADES

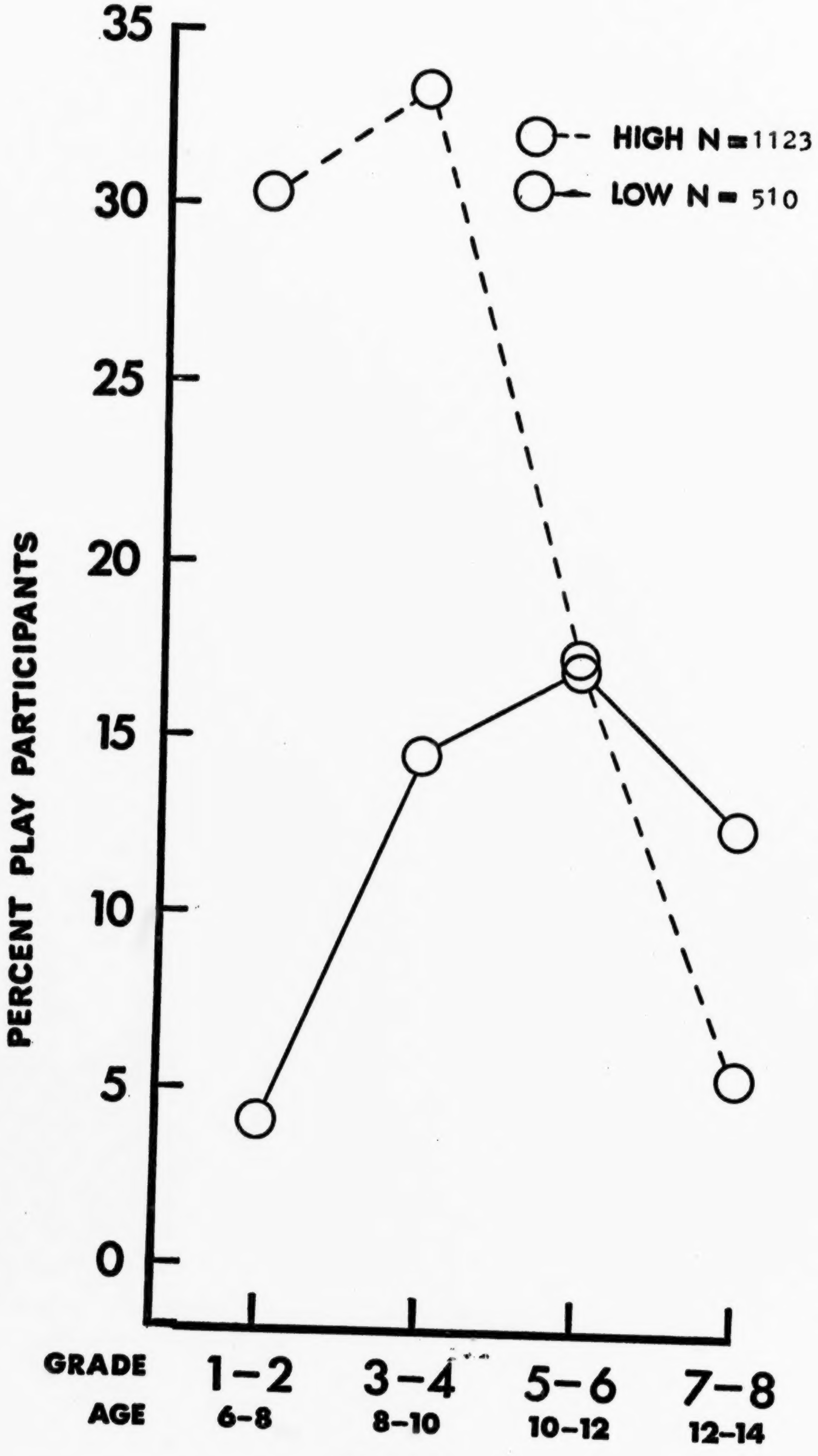

FIGURE 26
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF JUMP ROPE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

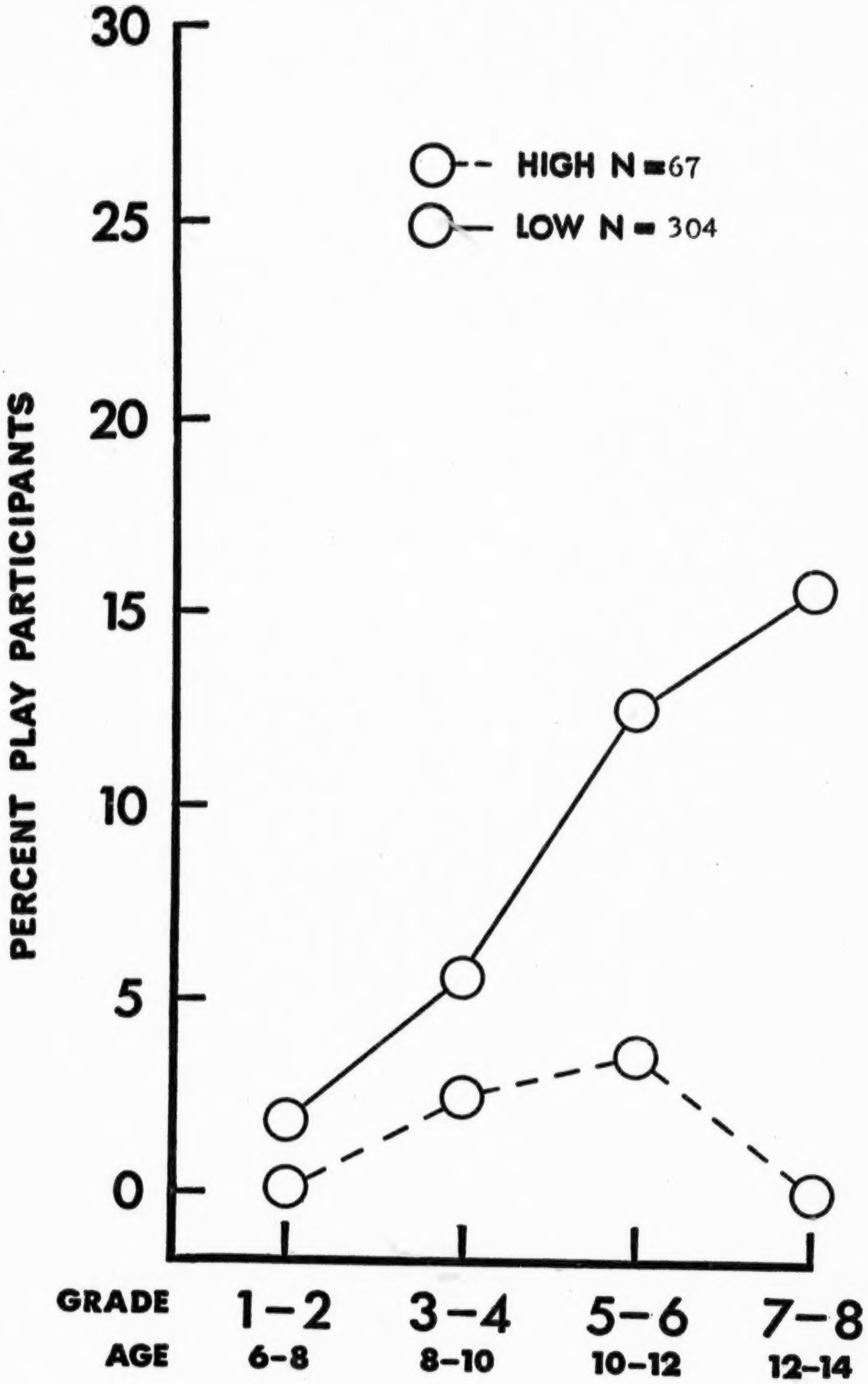

FIGURE 27
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS FIVE STONES (JACKS) IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

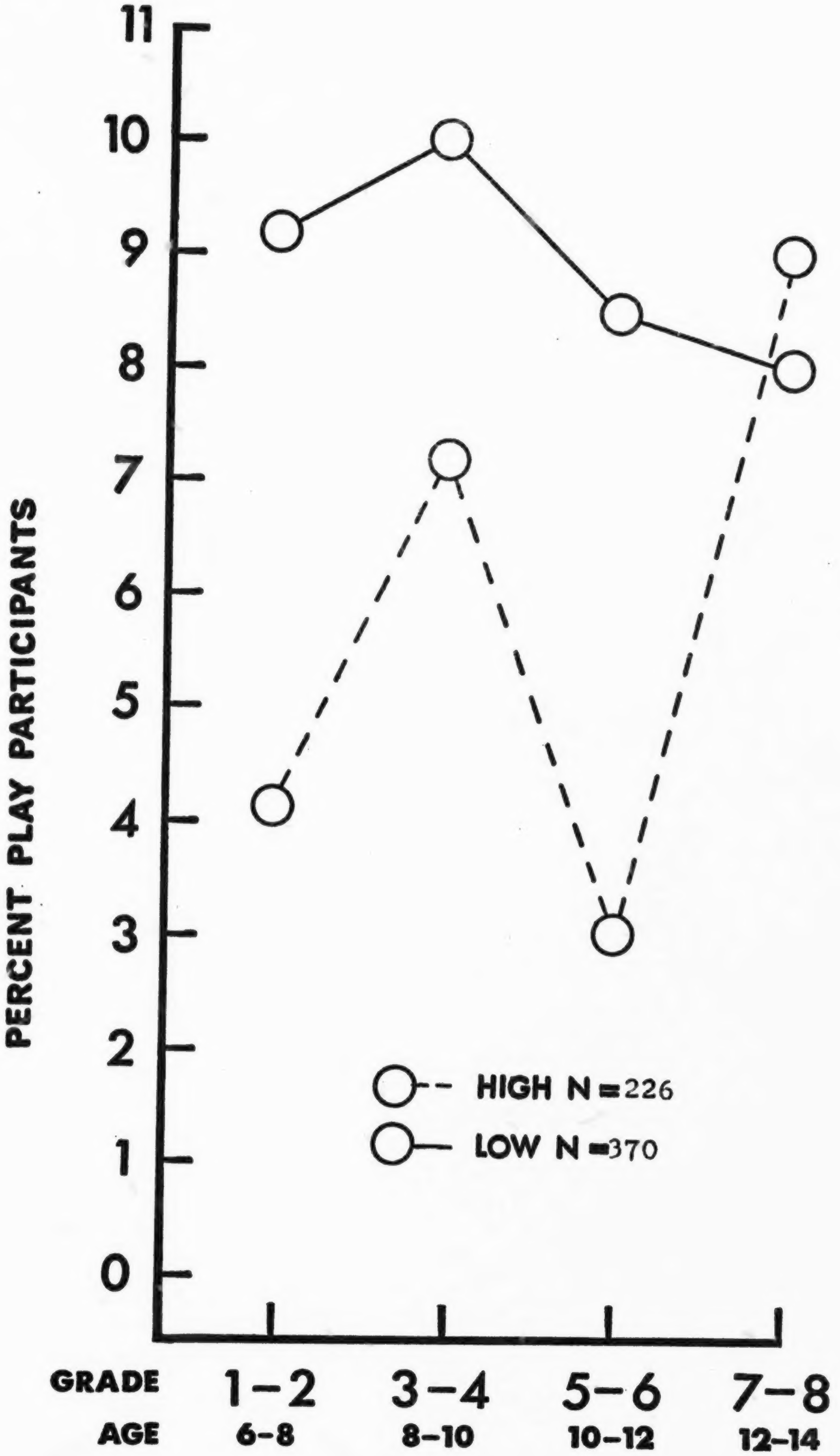

FIGURE 28
PERCENT OF GIRL PLAYERS WHO PLAYED HAND CLAPPING AND COORDINATION GAMES IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

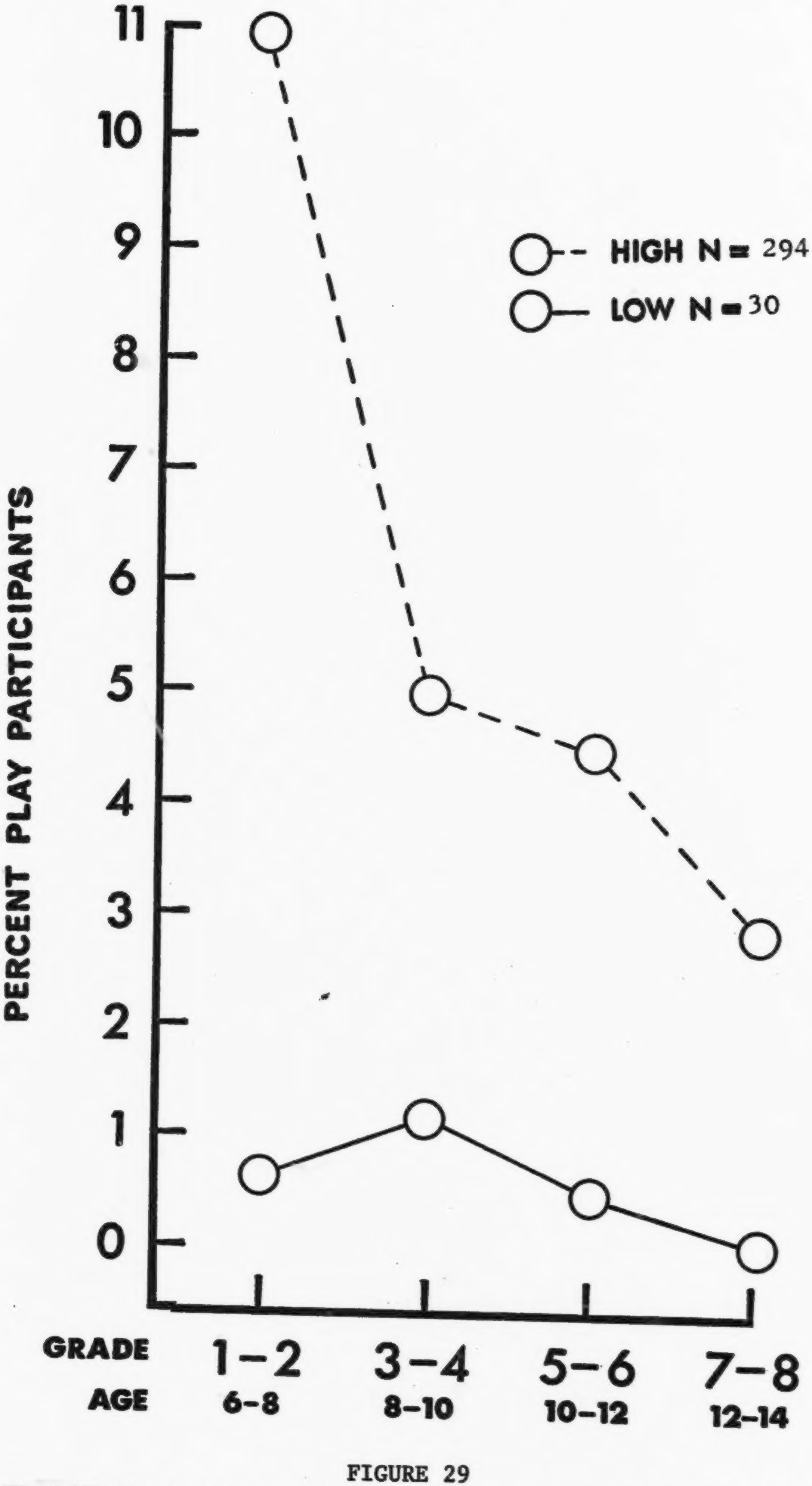

FIGURE 29
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF THE GAME OF "JAPANESE ELASTIC" ("GUMMI") IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

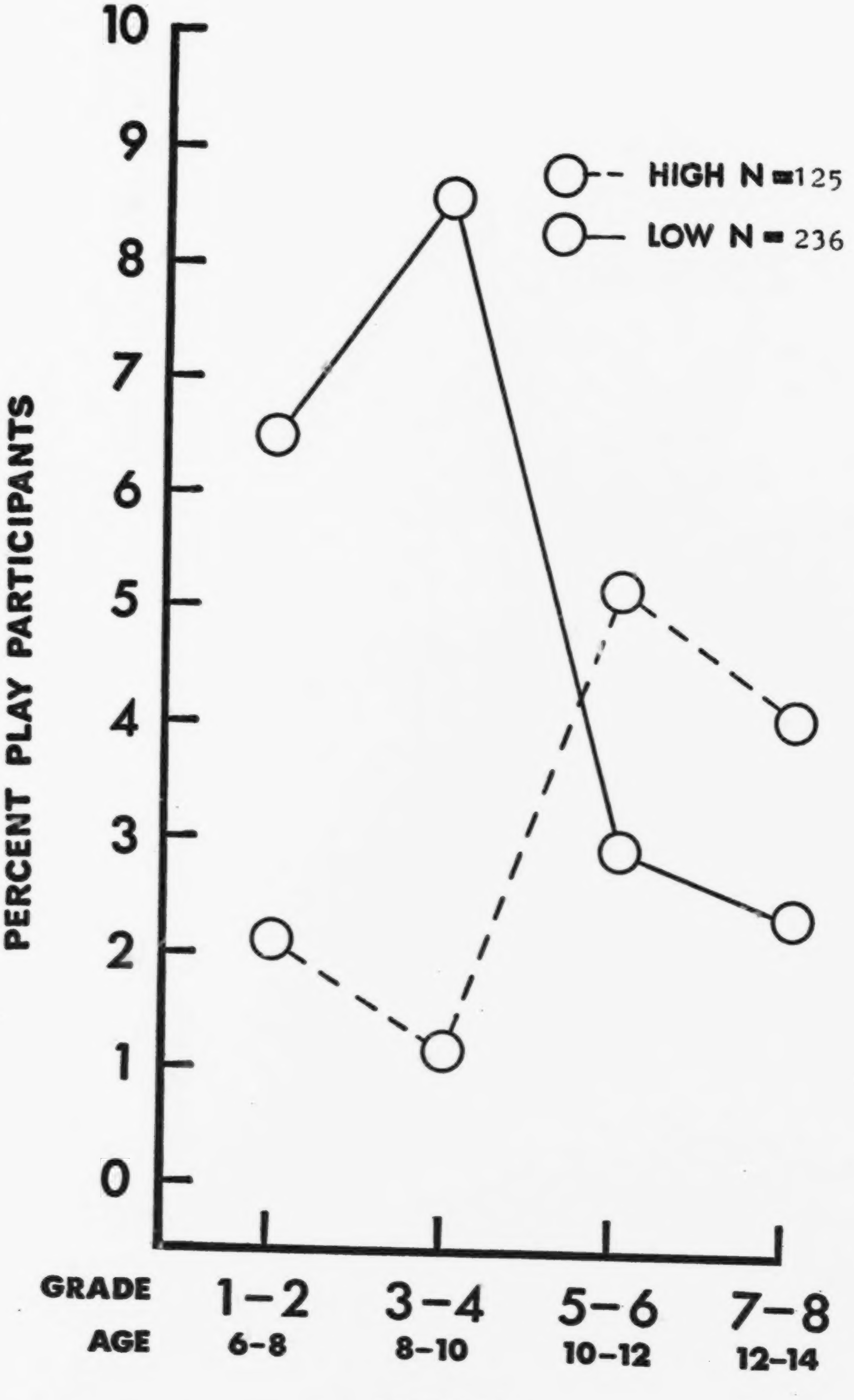

FIGURE 30
PERCENT OF GIRL PLAYERS WHO PLAYED VARIANTS OF HOPSCOTCH IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL AS A FUNCTION OF GRADE, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS OF STRUCTURED GAMES IN PAIRS OF SUCCESSIVE GRADES

TABLE 14

NUMBER AND PERCENT OF PLAY PARTICIPANTS WHO PLAYED GAMES FALLING INTO THE SPECIFIED BROAD CATEGORIES OUT OF TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES, BY GRADE AND SEX

CATEGORY		HIGH-LEVEL SCHOOL					LOW-LEVEL SCHOOL				
		GRADES					GRADES				
		1+2	3+4	5+6	7+8	TOTAL	1+2	3+4	5+6	7+8	TOTAL
T A G											
N	BOYS	542	412	110	38	1102	432	551	194	48	1225
	GIRLS	554	296	135	59	1044	361	390	213	43	1007
	BOTH	1096	708	245	97	2146	793	941	407	91	2232
%	BOYS	34.28	24.55	11.48	3.48	20.75	48.32	44.69	13.41	5.44	27.49
	GIRLS	34.18	21.42	15.35	16.67	24.80	38.73	25.41	17.16	14.48	25.14
	BOTH	34.23	23.14	13.54	6.70	22.54	43.43	34.00	15.14	7.72	26.38
DANCES											
N	BOYS	0	13	31	2	46	21	32	0	0	53
	GIRLS	31	37	119	16	203	241	248	244	26	759
	BOTH	31	50	150	18	249	262	280	244	26	812
%	BOYS	0.00	0.77	3.24	0.18	0.87	2.35	2.60	0.00	0.00	1.19
	GIRLS	1.91	2.68	13.97	4.52	4.82	25.86	16.16	19.66	8.75	18.95
	BOTH	0.97	1.63	8.29	1.24	2.62	14.35	10.12	9.08	2.21	9.60
NEW DONKEY											
N	BOYS	10	15	115	65	205	0	9	47	30	86
	GIRLS	0	2	85	26	113	2	22	31	30	85
	BOTH	10	17	200	91	318	2	31	78	60	171
%	BOYS	0.63	0.89	12.00	5.95	3.66	0.00	0.73	3.25	3.40	1.93
	GIRLS	0.00	0.14	9.98	7.34	2.68	0.21	1.43	2.50	10.10	2.12
	BOTH	0.31	0.56	11.05	6.29	3.34	0.11	1.12	2.90	5.09	2.02
APRICOT PITS											
N	BOYS	58	112	33	3	206	33	44	42	9	128
	GIRLS	28	54	30	3	115	3	5	1	0	9
	BOTH	86	166	63	6	321	36	49	43	9	137
%	BOYS	3.67	6.67	3.44	0.27	3.38	3.69	3.57	2.90	1.02	2.87
	GIRLS	1.73	3.91	3.52	0.85	2.73	0.32	0.33	0.08	0.00	0.22
	BOTH	2.69	5.42	3.48	0.41	3.37	1.97	1.77	1.60	0.76	1.62

TABLE 14, CONTINUATION

CATEGORY		HIGH-LEVEL SCHOOL					LOW-LEVEL SCHOOL				
		GRADES					GRADES				
		1+2	3+4	5+6	7+8	TOTAL	1+2	3+4	5+6	7+8	TOTAL
MARBLES											
N	BOYS	2323	27	15	8	73	7	19	83	61	170
%		1.45	1.61	1.57	0.73	1.37	0.78	1.54	5.74	6.92	3.82
SOCCER											
N	BOYS	74	182	73	206	535	11	203	370	342	926
%		4.68	10.85	7.62	18.85	10.08	1.23	16.46	25.57	38.78	20.78
BASKETBALL											
N	BOYS	5	82	145	427	659	1	19	41	72	133
%		0.32	4.89	15.14	39.07	12.41	0.11	1.54	2.83	8.16	2.98
HIDE-AND-SEEK-TAG											
N	BOYS	313	99	9	0	421	—	—	—	—	—
%		19.80	5.90	0.94	0.00	7.93					
TOPS											
N	BOYS	—	—	—	—	—	14	32	75	55	176
%							1.57	2.60	5.18	6.24	3.95
JUMPROPE											
N	GIRLS	492	464	148	19	1123	38	223	211	38	510
%		30.35	33.57	17.37	5.37	26.68	4.08	14.53	17.00	12.79	12.73
FIVE STONES											
N	GIRLS	2	34	31	0	67	18	84	156	46	304
%		0.12	2.46	3.64	0.00	1.59	1.93	5.47	12.57	15.49	7.59
HAND CLAPPING											
N	GIRLS	68	100	26	32	226	86	154	106	24	370
%		4.19	7.24	3.05	9.04	5.37	9.23	10.03	8.54	8.08	9.24
JAPANESE ELASTIC											
N	GIRLS	177	69	38	10	294	6	18	6	0	30
%		10.92	4.99	4.46	2.82	6.99	0.64	1.17	0.48	0.00	0.75
HOPSCOTCH											
N	GIRLS	39	23	48	15	125	61	132	36	7	236
%		2.41	1.66	5.63	4.24	2.97	6.55	8.60	2.90	2.36	5.89

BOYS AND GIRLS PLAYING TOGETHER AND APART

A. PLAYING TOGETHER

Figures 31-32 (pp. 146-147)
Table 14-15 (pp. 144; 148)

Prevalent claims that there is no interaction between the sexes during latency (see p. 81 for references), were disconfirmed in both stages of this investigation. It may be seen in Figure 31 and Table 15 that there is a decline in the extent to which boys and girls play together during mid-childhood, but interaction does persist at all ages. As expected, socialization processes affect the extent of interaction to a very considerable degree: there is less interaction between the sexes in the low-level than in the high-level schools. In the two Arab schools, though they are coeducational and the children mix in class, there are practically no sex heterogeneous play groups. Figure 32 shows that the extent of mixed playing in the local kibbutz school of our sample is by far greater than anywhere. The trend in the extent of interaction in play over different age groups is also at variance with that in all other schools. Interestingly enough, this particular rate and trend is only apparent in the local kibbutz school, whose population consists of children who spend most of their time together and live and sleep in children's homes. On the other hand, the trends regarding mixed play in the regional kibbutz school, in which children from different kibbutzim meet during school hours only, do not vary from those of other high-level schools.

Going back to Figure 31, it is interesting to note that both in the high-level and in the low-level schools, more girls play with boys than boys do with girls, at all age levels. Furthermore, this tendency tends to decrease in the middle school years and increases again in the upper grades, particularly in the high-level schools. The age range in which girls tend to play their own games is eight through twelve years, which corresponds rather well with the narrowing gap between boys and girls in extent of mixed playing in the middle school years. We shall return to this point in our discussions of games typical to different age groups, on p. 192.

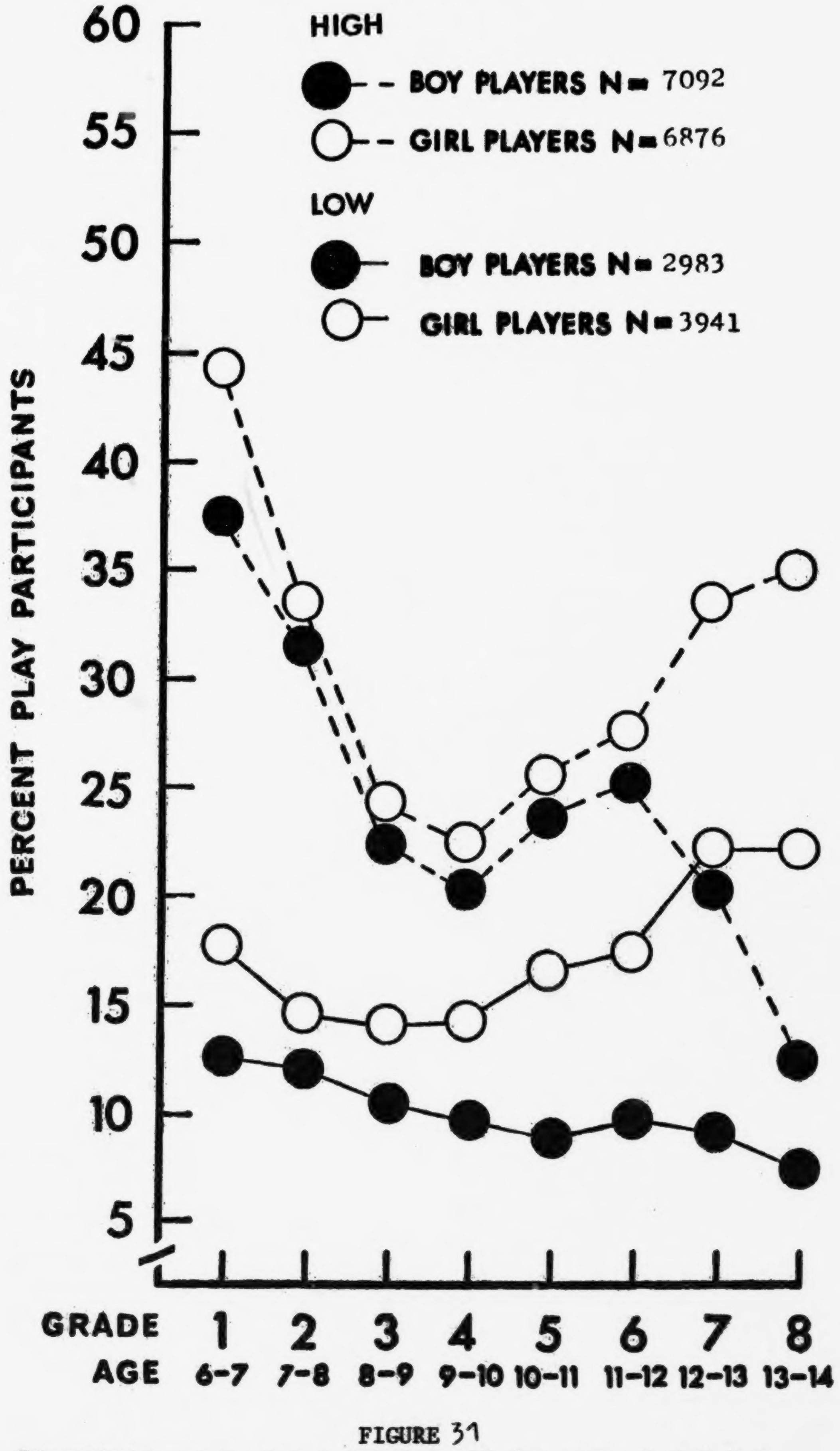

FIGURE 31
PERCENT OF BOY PLAYERS IN HIGH-LEVEL AND LOW-LEVEL SCHOOLS, IN SUCCESSIVE SCHOOL GRADES, WHO PLAYED IN SEX-HETEROGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS IN EACH GRADE, AND PERCENT OF GIRL PLAYERS WHO PLAYED IN SUCH GROUPS, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS IN EACH GRADE

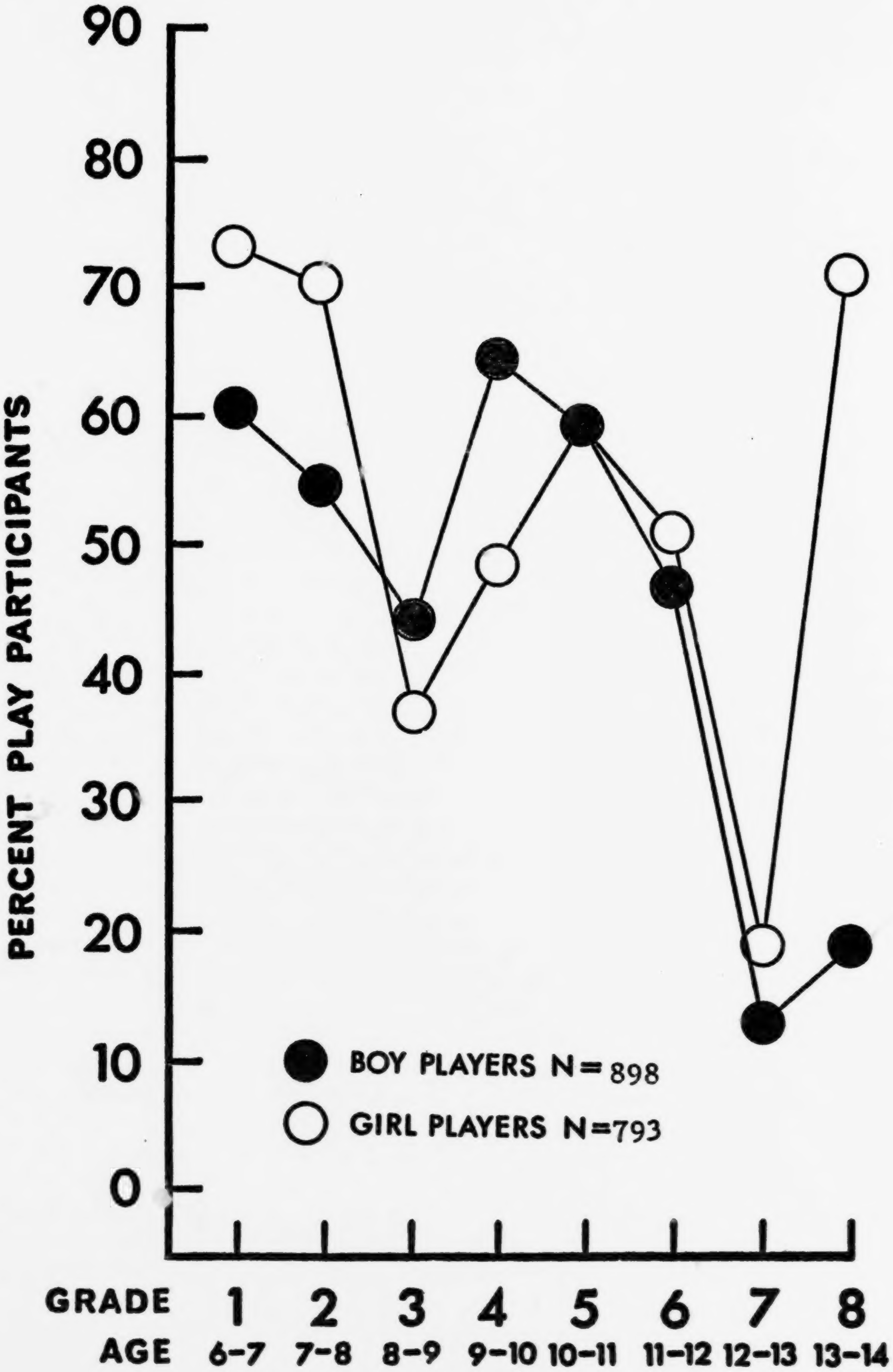

FIGURE 32
PERCENT OF BOY PLAYERS BY GRADE, IN THE LOCAL KIBBUTZ SCHOOL, WHO PLAYED IN SEX-HETEROGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS IN EACH GRADE, AND PERCENT OF GIRL PLAYERS WHO PLAYED IN SUCH GROUPS, OUT OF THE TOTAL NUMBER OF GIRL PLAYERS IN EACH GRADE

TABLE 15

NUMBER AND PERCENT OF BOY PLAYERS IN EACH GRADE
WHO PLAY IN SEX HETEROGENOUS GROUPS OUT OF TOTAL NUMBER OF BOY PLAYERS IN EACH GRADE
AND PERCENT OF GIRL PLAYERS WHO PLAY IN SUCH GROUPS OUT OF TOTAL NUMBER OF GIRL PLAYERS IN EACH GRADE

			GRADE								TOTAL
			1	2	3	4	5	6	7	8	
HIGH	N OF	BOYS	1344	1323	914	776	765	886	748	336	7092
		GIRLS	1308	1377	908	886	744	745	624	284	6876
		BOTH	2652	2700	1822	1662	1509	1631	1372	620	13968
	%	BOYS	37.7	31.5	22.4	20.5	23.9	25.2	20.5	12.7	24.8
		GIRLS	44.3	33.6	24.4	22.6	25.9	27.9	33.8	35.1	30.0
		BOTH	40.7	32.6	23.3	21.6	24.8	26.4	25.0	17.9	27.1
LOW	N OF	BOYS	401	455	428	440	413	375	298	173	2983
		GIRLS	471	556	557	633	595	508	432	189	3941
		BOTH	872	1011	985	1073	1008	883	730	362	6924
	%	BOYS	12.8	12.1	10.5	9.9	9.0	9.9	9.2	7.5	10.2
		GIRLS	17.8	14.8	14.1	14.4	16.9	17.7	22.3	22.3	16.5
		BOTH	15.1	13.4	12.2	12.1	12.4	13.3	14.1	11.5	13.0
KIBBUTZ	N OF	BOYS	82	128	112	126	167	168	60	55	898
		GIRLS	116	109	65	113	127	153	34	76	793
		BOTH	198	237	177	239	294	321	94	131	1691
	%	BOYS	60.7	54.7	44.1	64.3	59.6	47.1	12.9	18.8	40.6
		GIRLS	73.2	70.3	31.6	48.7	59.6	51.0	19.0	71.0	52.2
		BOTH	67.6	60.9	41.4	55.8	59.6	48.9	14.6	32.8	45.3

B. PLAYING APART

1. TYPICAL BOYS' AND GIRLS' GAMES

Figures 17-30; (pp. 129-142)
Table 15; 16; (pp. 148; 149)

Games in which at least two-thirds of the participants, in each of two schools -- the high-level and the low-level Jerusalem schools -- were of one sex, were classified as one-sexed games. As a matter of fact, in most cases 85 percent or more of the players were of one sex. Only games played by at least 50 participants during the complete observation period were included in this classification. The total number of participants in these games account for over 50 percent of play participants in structured games.

When classified into broad categories (see pp. 127 , above), 20 different categories were obtained, 14 of which were boys' games and 6 were girls' games. Some of these game classes are presented in Figures 17-30 according to their distribution by sex and age in both schools. The following Table 16 presents the game classes thus obtained.

TABLE 16

PREDOMINANT CLASSES OF BOYS' AND GIRLS' GAMES PLAYED IN TWO SCHOOLS

Boys' Games	Girls' Games
Variants of:	Variants of:
1. Basketball	1. Jump rope
2. Soccer	2. Japanese Elastic (Gummi)
3. Hide-and-seek-tag	3. Hand clapping and coordination
4. Wrestling	4. Dances
5. Marbles	5. Hopscotch
6. Chicken war	6. Jacks (five stones)
7. Carrying games	
8. Catch	
9. Tops	
10. Hand catch	
11. Jumping on each others' feet	
12. Apricot pits	
13. Mock soccer	
14. Head ball	

An additional 14 classes of games, in nine of which boys predominated and in five girls, are not included in the classification presented in Table 16, since fewer than 50 players participated in them. An analysis of the data from our 12 additional schools will probably enable a reliable classification of most of these game categories.

The fact that there were more classes of boys' games than of girls' games is perhaps not surprising, in view of the stronger sex-role-identification attributed to boys. However, this does not mean, as has been sometimes assumed (see, for example, Sutton-Smith, 1965), that more girls play boys' games than vice versa.

The facts we found were the following:
(1) about 40 percent of all boy players played in exclusive boys' games (i.e., games in which 95+ percent of participants were boys), while only about 7 percent of girl players played in exclusive girls' games; (2) about 40 percent of all girls played in predominant girls' games (i.e., games in which 95-85 percent of participants were girls), while only some 8 percent of boy players participated in predominant boys' games. This means, obviously, that more boys played in predominant girls' games than girls played in predominant boys' games, contrary to the assumption mentioned. This assumption seems to have been induced by a wrong interpretation of the (correct) impression that many more boys play in exclusive boys' games than girls play in exclusive girls' games.

2. SEX-TYPED CHARACTERISTICS OF GAMES

Figures 17-30 (pp. 129-142)
Table 16 (p. 149)

As a first step in our attempt to get at what is "species-specific" about boys' games and girls' games, we made some overall comparisons based on our records in the two Jerusalem schools. Some interesting differences were thus revealed, which will form the basis for a more systematic and theory-oriented analysis of the data.

Most boys' games are characterized by far more interdependence between the players than most girls' games: only certain variants of two of their games can be played alone, whereas most girls' games can be thus played. Insofar as it exists, the interdependence in girls' games tends to be instrumental in character (e.g., in jump rope -- turning the rope, in versions of hand clapping games -- holding one's hands up), whereas in boys' games it is more often the case that the action of one child will depend on a previous action of another (soccer, marbles, or catch). Hence, the action sequences are by far more precisely predetermined in most girls' games: they are either determined by the first player, or by the conventional rules of the game (the rhymes and movements accompanying jump rope, or the successive steps of hopscotch or jacks). In girls' games a division of roles between players is less commonly found than in boys' games. There are no group games amongst the typical games of girls (except for some of the dances -- which are a category of its own). Boys rarely take turns in their games: rather, the extent and nature of their participation is ascribed by their role (which is presumably determined by previous achievement), by the good will of other children (who choose to whom to throw, or kick, the ball, for example), and by the extent of their own initiative (e.g., in wrestling). In girls' games participation tends to be predetermined by taking turns, either successively, or after failure.

The nature of competition in girls' games also seems to differ from that in boys' games: the latter are more often characterized by definite outcomes of winning and losing, whether of points, or through material gain, whereas girls' games are not so much characterized by a definite end, as by a comparison of relative achievements when they stop playing; such achievements might be, gaining a preferred position or having lasted through a larger number of moves in the game.

In boys' games there is more direct facing of each other, more physical contact, more expenditure of energy and strength and more opportunity for aggression.

Boys also tend to quarrel more while playing than girls although such quarrels only rarely cause termination of play. On the whole, girls' games last longer than boys'. Girls require less space for most of their games, and prefer hard play surfaces.

Since our record sheets contained information on quarreling, play duration and termination, and play space, we have also carried out a few separate analyses on these variables, some of which will now be presented.

QUARREL DURING PLAY

Figures 33-41 (pp. 154-162)
Table 17 (pp. 163-165)

All incidents of quarrel during play were recorded. When the quarrel led to the termination of the game, this was recorded, too.

Boys quarrel more often than girls during play. Contrary to expectations, however, there is more quarreling in high-level schools than in low-level schools (compare Figure 33 and 34). Kibbutz children (Figure 35) tend to quarrel far more frequently than other children. (It should be noticed that Figure 35 is drawn to half the scale of the two preceding Figures.) This is in accord with reported findings on the relatively high frequency in incidence of quarrel amongst siblings and best friends.

We hypothesized that since quarrel results, among other reasons, also from disharmony in interests and great differences in abilities amongst the players, it should occur more frequently in the heterogeneous than in homogeneous groups. A comparison of the extent of quarrel of boys and girls who play in sex-homogeneous as compared with sex-heterogeneous groups (Figures 36 and 37), in age-homogeneous and age-heterogeneous groups (Figures 38 and 39) and in age- and sex-homogeneous groups (Figure 40) shows that homogeneity leads in all cases to some reduction in quarreling. The most outstanding difference in this respect is between the extent of quarreling in groups in which girls play alone (Figure 36) as against the much higher extent of quarreling in sex-heterogeneous groups (Figure 37): $\bar{x} = 7.7\%$ as against $\bar{x} = 15.8\%$. It does not appear that girls who play with boys reduce the extent to which boys quarrel ($\bar{x} = 14.3\%$ of boys playing alone, as against $\bar{x} = 15.7\%$ of participants in sex-heterogeneous groups). It does not appear, on the other hand, that there is less quarreling when boys play with girls than when they play alone.

It is interesting to realize how rarely quarrel, whether internal, (Figure 41) or such that is caused by interference of non-players, in fact leads to termination of play (Table 17).

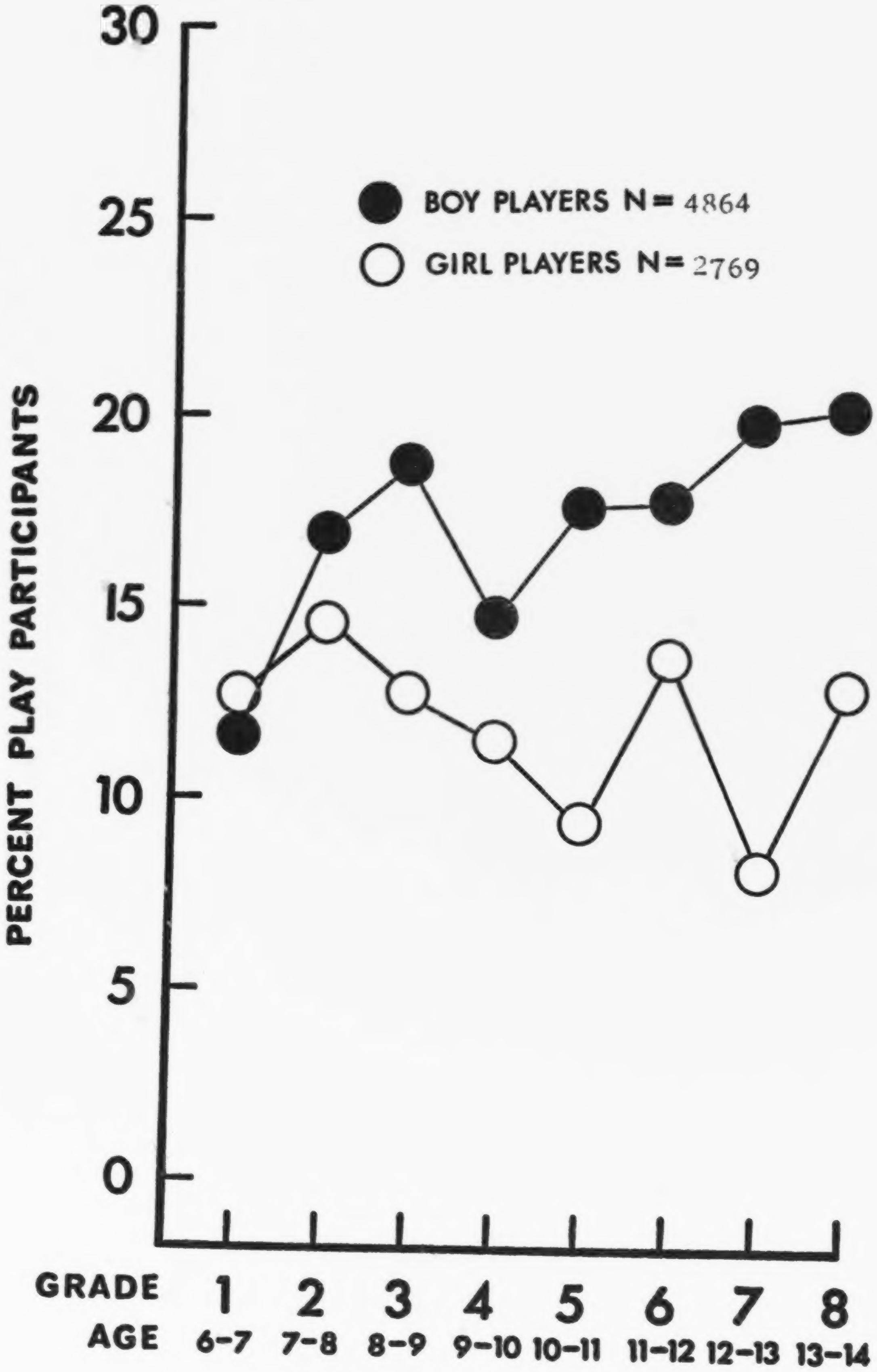

FIGURE 33
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN THE HIGH-LEVEL SCHOOLS, WHO QUARRELED DURING PLAY, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

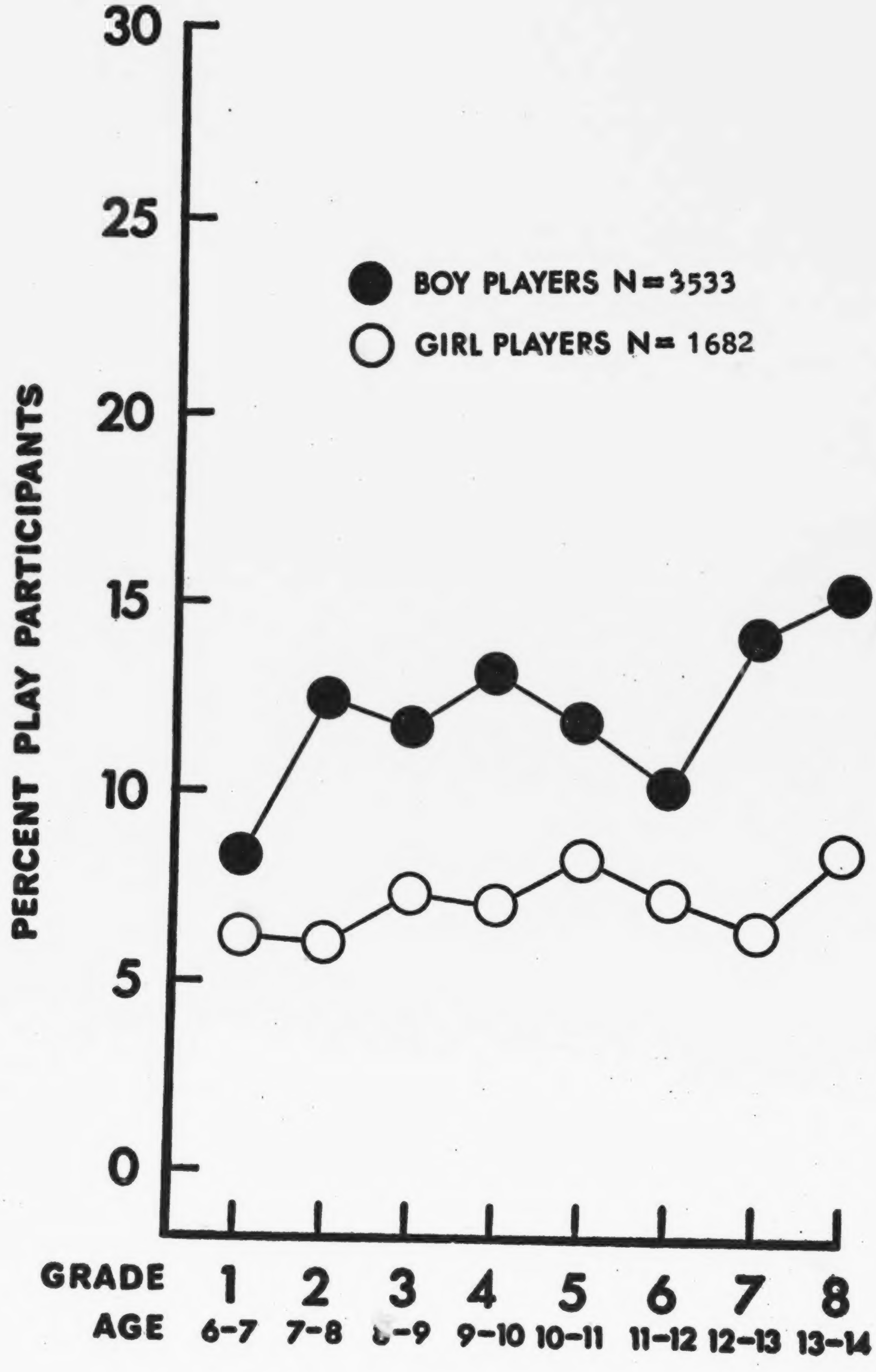

FIGURE 34
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN THE LOW-LEVEL SCHOOLS, WHO QUARRELED DURING PLAY, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

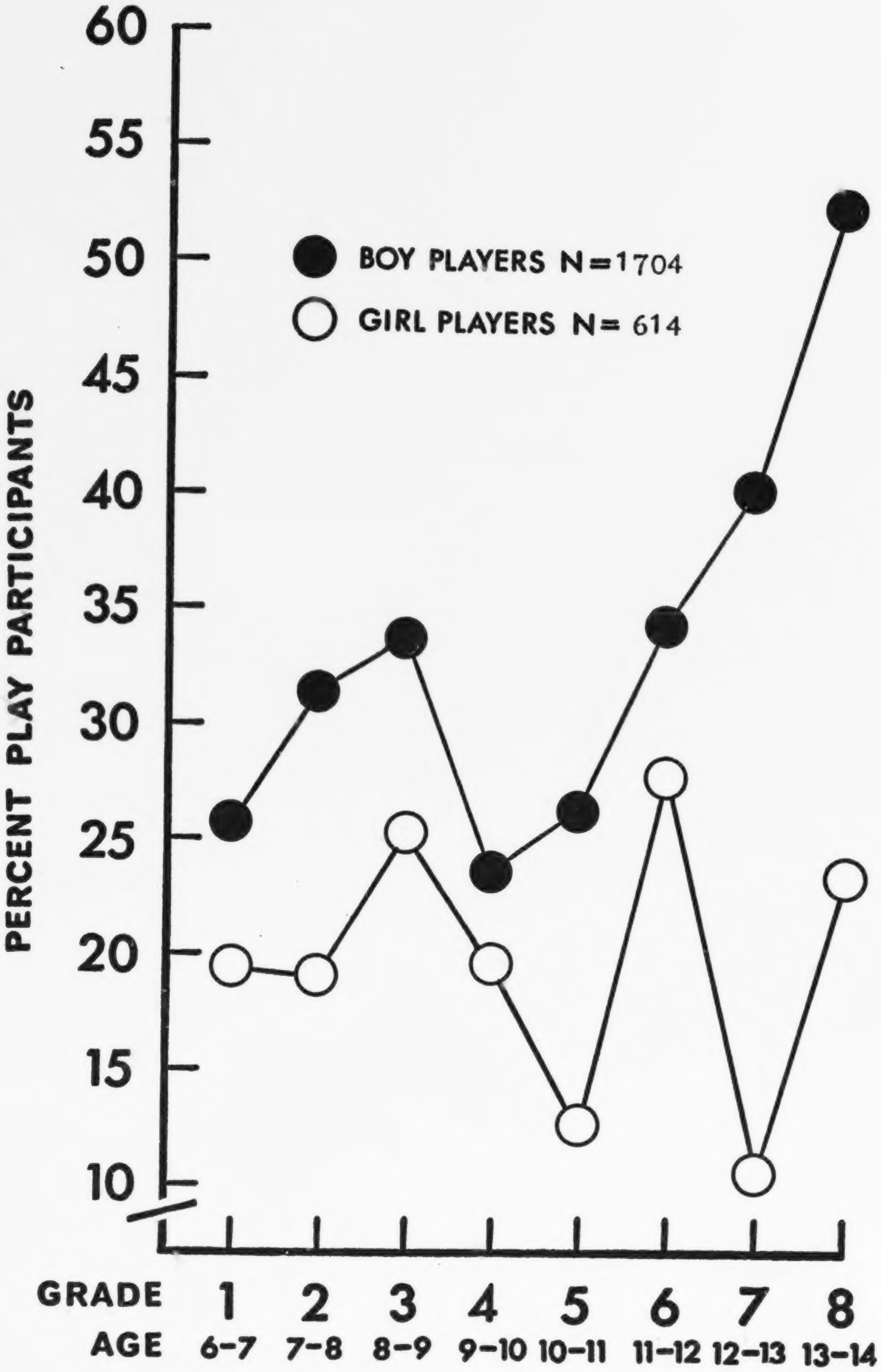

FIGURE 35
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN THE KIBBUTZ SCHOOLS, WHO QUARRELED DURING PLAY, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

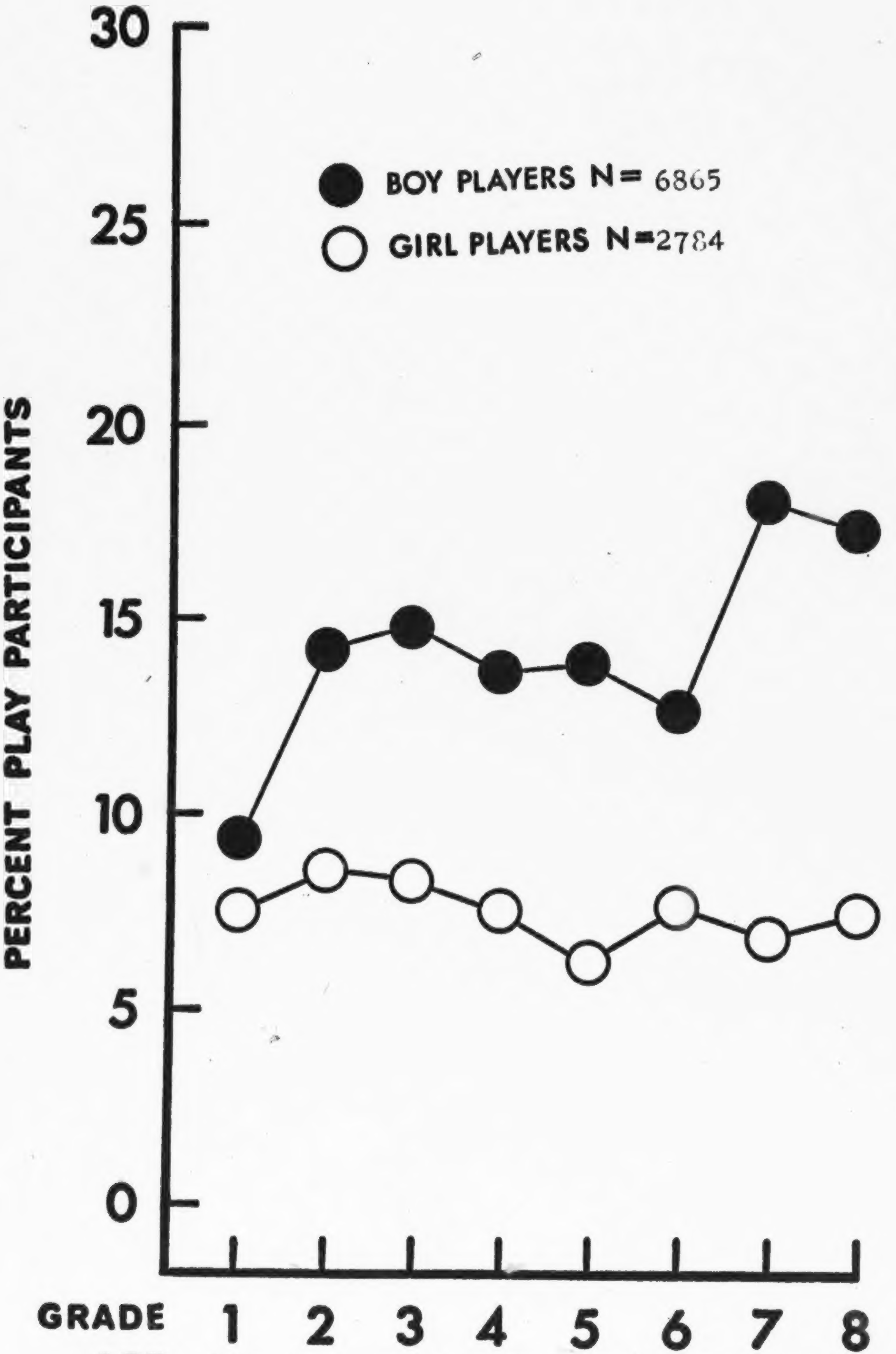

FIGURE 36
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL SCHOOLS, WHO QUARRELED WHEN PLAYING IN SEX-HOMOGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN SUCH GROUPS IN EACH GRADE

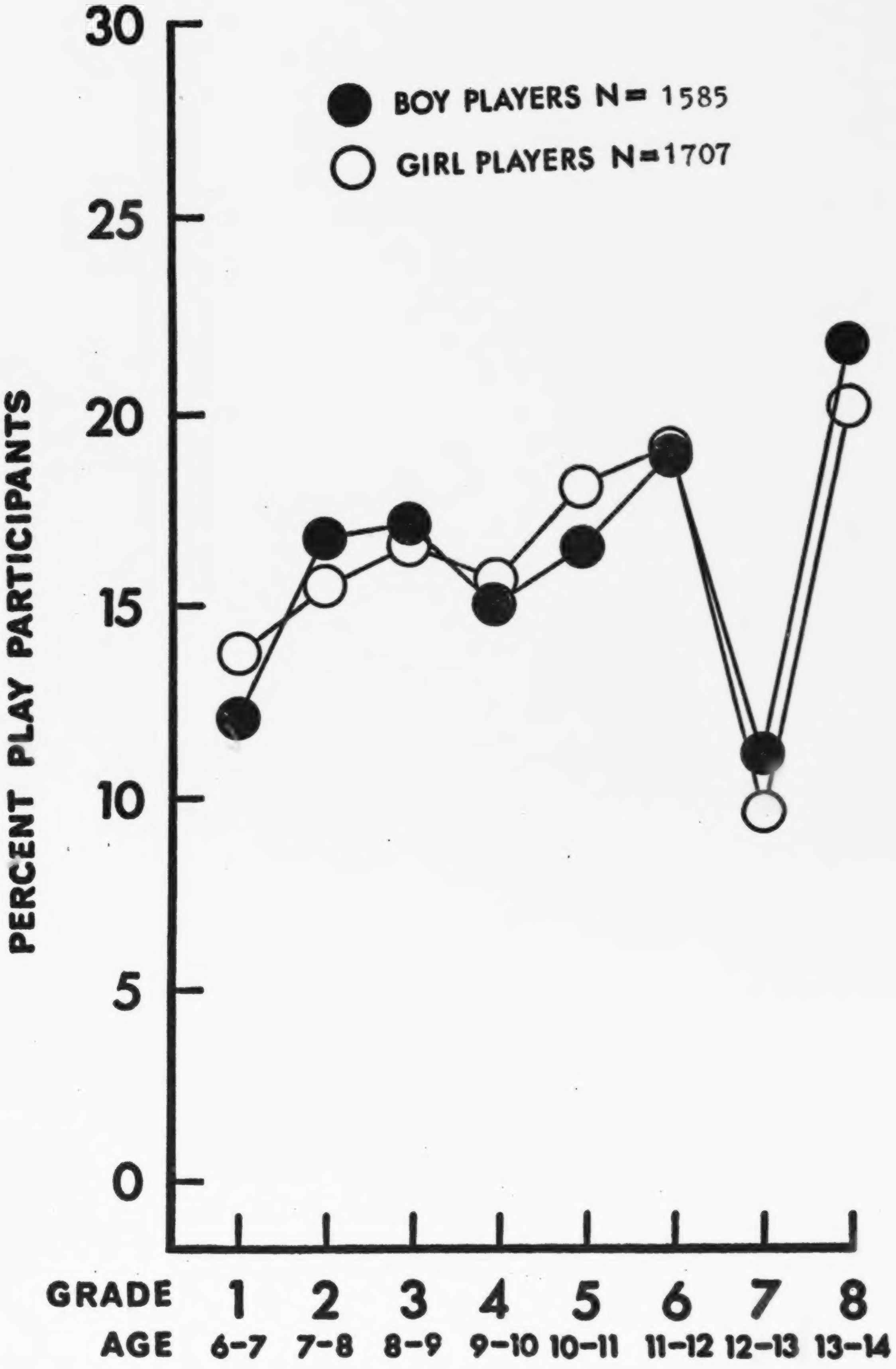

FIGURE 57

PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL SCHOOLS, WHO QUARRELED WHEN PLAYING IN SEX-HETEROGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN SUCH GROUPS IN EACH GRADE

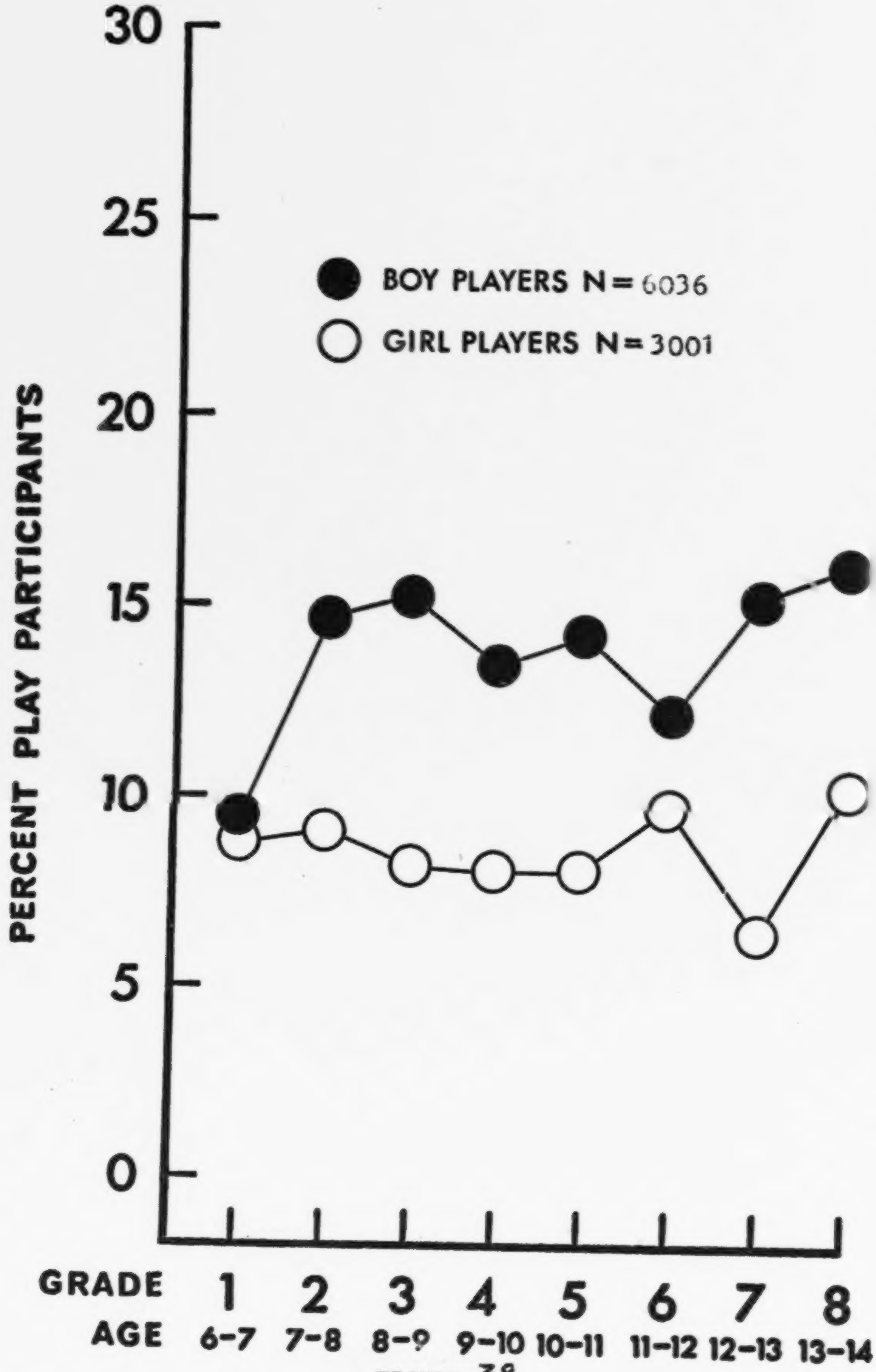

FIGURE 38

PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL SCHOOLS, WHO QUARRELED WHEN PLAYING IN AGE-HOMOGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN SUCH GROUPS IN EACH GRADE

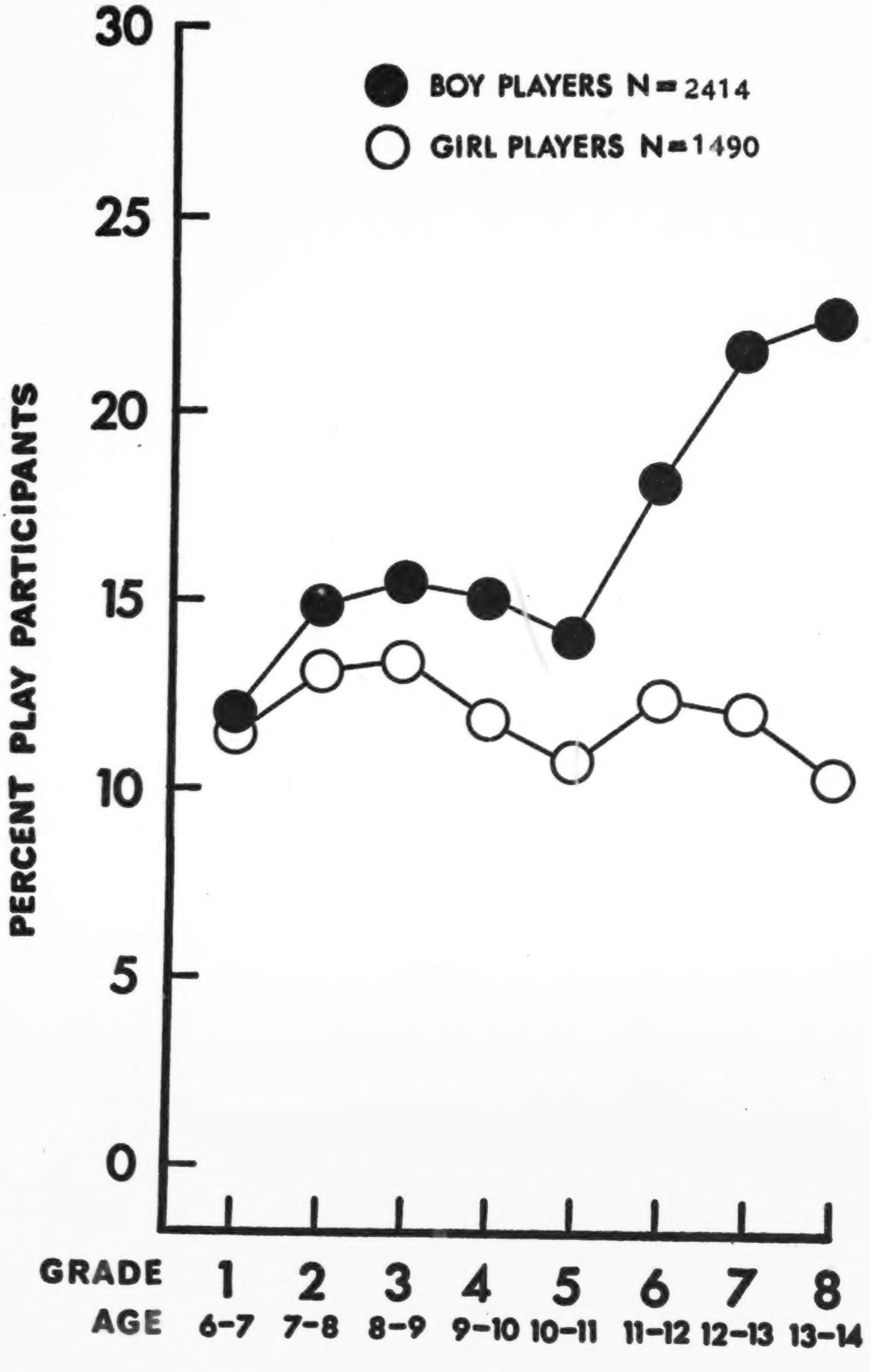

FIGURE 39
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL SCHOOLS, WHO QUARRELED WHEN PLAYING IN AGE-HETEROGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN SUCH GROUPS IN EACH GRADE

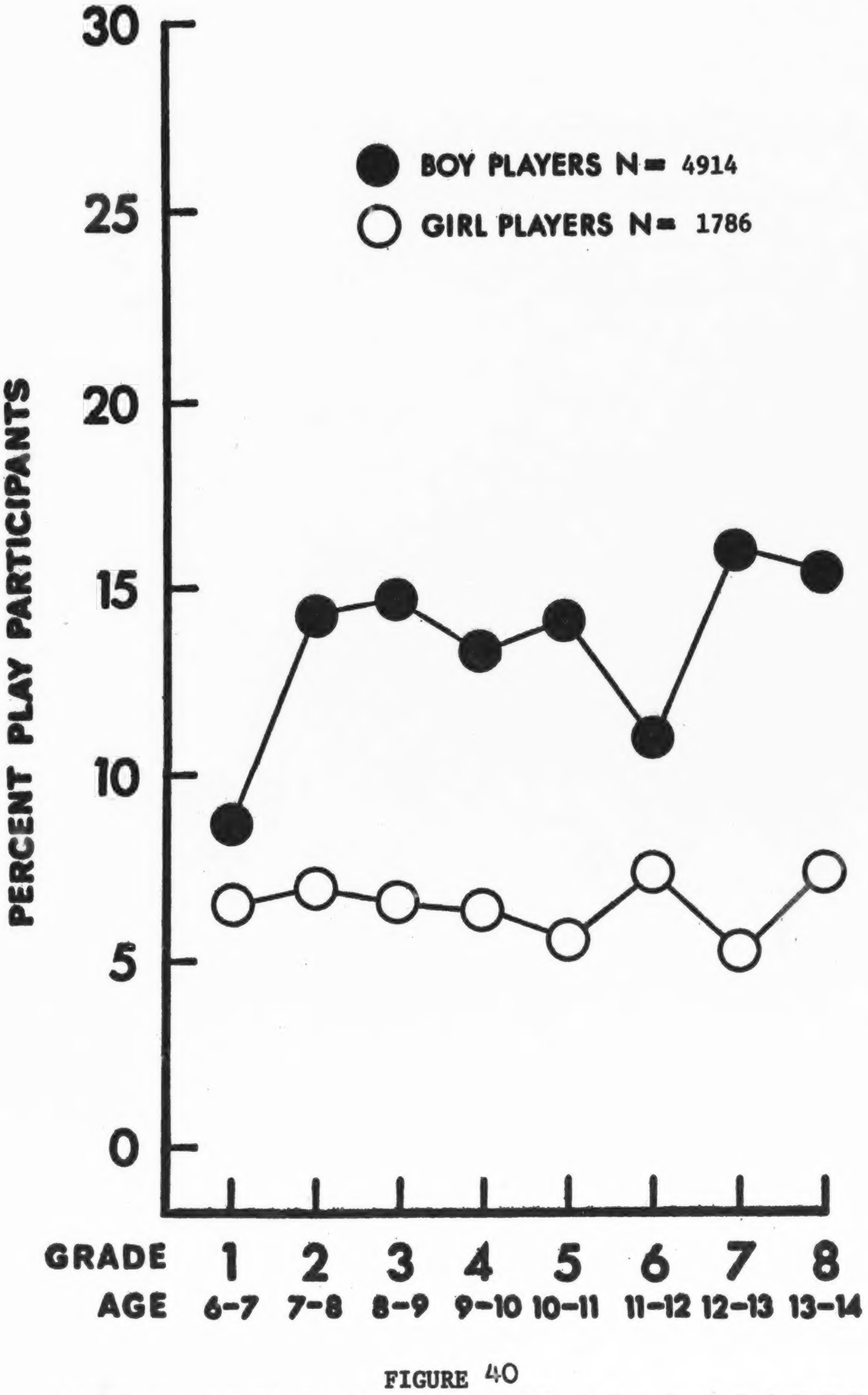

FIGURE 40
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL SCHOOLS, WHO QUARRELED WHEN PLAYING IN AGE- AND SEX-HOMOGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN SUCH GROUPS IN EACH GRADE

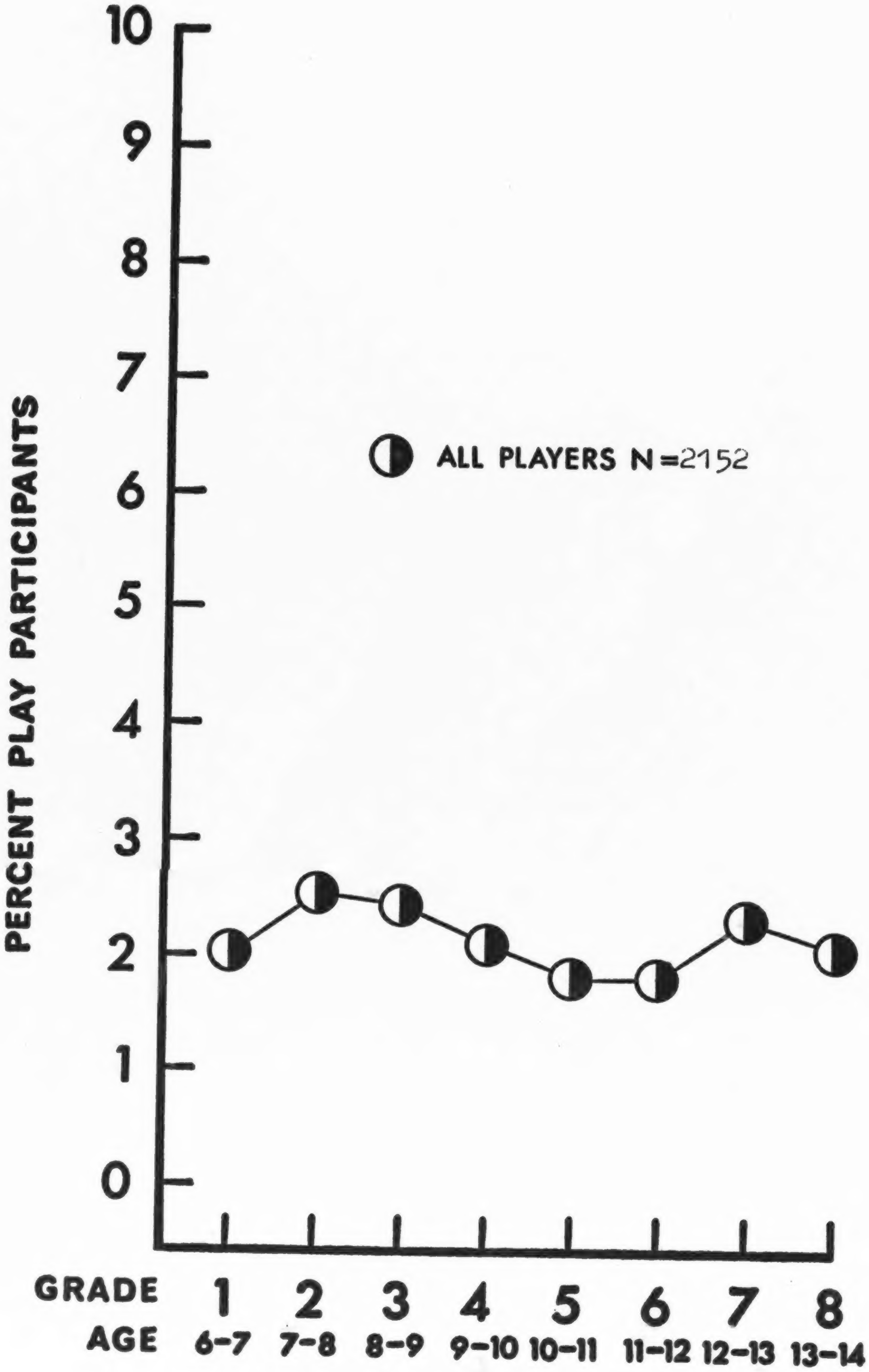

FIGURE 41

PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL SCHOOLS WHOSE PLAY WAS TERMINATED BY INTERNAL QUARREL, OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS IN EACH GRADE.

TABLE 17

TOTAL NUMBER AND PERCENT PLAY PARTICIPANTS BY GRADE WHO QUARRELED DURING PLAY IN THE HIGH-LEVEL, THE LOW-LEVEL AND THE KIBBUTZIM SCHOOLS, AND IN ALL SCHOOLS -- IN THE GROUPS SPECIFIED, AND NUMBER AND PERCENT PARTICIPANTS WHOSE PLAY WAS TERMINATED THROUGH "INTERNAL" OR "EXTERNAL" QUARREL

NUMBER

CATEGORY:			ALL HIGH	ALL LOW	ALL KIB-BUTZ	SEX HET-ERO.	AGE HET-ERO.	TERMINATION INT-ERN-AL	EXT-ERN-AL
		BOYS	4864	3533	1704				
TOTAL		GIRLS	2769	1682	614	1585	2414	1414	548
		A L L	7633	5215	2318	1707	1490	738	385
						3292	3904	2152	933
GRADE	8	BOYS	524	348	327	111	308	88	31
		GIRLS	102	73	46	95	39	13	12
		A L L	626	421	373	206	347	101	43
	7	BOYS	717	452	428	117	421	194	61
		GIRLS	150	124	34	102	102	43	31
		A L L	867	576	462	219	523	237	92
	6	BOYS	623	387	225	239	333	162	123
		GIRLS	364	210	145	239	126	60	24
		A L L	987	597	370	478	459	222	147
	5	BOYS	562	550	150	195	254	160	90
		GIRLS	267	292	62	243	159	90	67
		A L L	829	842	212	438	413	250	157
	4	BOYS	556	589	148	182	279	216	57
		GIRLS	453	310	90	239	264	123	77
		A L L	1009	899	238	421	543	339	134
	3	BOYS	767	480	193	230	341	235	92
		GIRLS	468	290	103	243	317	139	81
		A L L	1235	770	296	473	658	374	173
	2	BOYS	700	470	164	299	302	185	62
		GIRLS	590	222	84	298	311	201	52
		A L L	1290	692	248	597	613	386	114
	1	BOYS	415	257	69	212	176	174	32
		GIRLS	375	161	50	248	172	69	41
		A L L	790	418	119	460	348	243	73

CATEGORY:			AGE HOM-OGE.	SEX HOM-OGE.	AGE & SEX HOMOG.
TOTAL		BOYS	6036	6865	4914
		GIRLS	3001	2784	1786
GRADE	8	BOYS	579	776	502
		GIRLS	146	90	73
	7	BOYS	751	1055	662
		GIRLS	191	191	113
	6	BOYS	683	777	498
		GIRLS	448	335	262
	5	BOYS	868	927	737
		GIRLS	402	318	228
	4	BOYS	873	970	739
		GIRLS	499	524	326
	3	BOYS	906	1017	754
		GIRLS	445	519	299
	2	BOYS	876	879	672
		GIRLS	504	517	300
	1	BOYS	500	464	350
		GIRLS	366	290	185

TABLE 17, CONTINUATION

	PERCENTAGE IN GRADES								
ALL HIGH	1	2	3	4	5	6	7	8	TOTAL
BOYS	11.8	17.0	18.9	14.8	17.8	18.0	20.0	20.3	17.2
GIRLS	12.8	14.6	12.9	11.7	9.4	13.9	8.2	13.1	12.3
ALL	12.2	15.9	16.1	13.2	13.8	16.3	16.0	18.6	15.0
ALL LOW									
BOYS	8.3	12.6	11.9	13.3	12.0	10.2	14.3	15.4	12.2
GIRLS	6.1	6.0	7.4	7.1	8.4	7.3	6.5	8.7	7.1
ALL	7.3	9.3	9.6	10.2	10.4	9.0	11.3	13.6	9.9
ALL KIBBUTZIM									
BOYS	25.6	31.2	33.8	23.7	26.1	34.3	40.1	52.1	34.6
GIRLS	19.3	19.0	25.2	19.7	12.8	27.7	10.9	23.4	19.9
ALL	22.5	25.6	30.2	22.0	20.0	31.4	33.5	45.2	29.0
SEX HOMOGENOUS GROUPS									
BOYS	9.4	14.2	14.9	13.8	14.0	12.9	18.1	17.4	14.3
GIRLS	7.6	8.7	8.3	7.7	6.3	7.8	7.0	7.6	7.7

TABLE 17, CONTINUATION

	PERCENTAGE IN GRADES								
SEX HETEROGENEOUS GROUPS	1	2	3	4	5	6	7	8	TOTAL
BOYS	12.1	16.8	17.1	15.0	16.6	19.0	11.2	21.8	15.7
GIRLS	13.9	15.4	16.6	15.7	18.1	19.1	9.7	20.1	15.8
ALL	13.1	16.1	16.9	15.4	17.4	19.0	10.4	21.0	15.8
AGE HOMOGENEOUS GROUPS									
BOYS	9.6	14.8	15.2	13.7	14.4	12.5	15.2	16.1	13.9
GIRLS	8.9	9.2	8.3	8.1	8.1	9.9	6.5	11.4	8.6
AGE HETEROGENEOUS GROUPS									
BOYS	12.1	14.9	15.4	15.1	14.2	18.2	21.7	22.5	16.7
GIRLS	11.6	13.2	13.5	12.0	10.9	12.6	12.2	10.4	12.4
ALL	11.8	14.0	14.4	13.4	12.7	16.2	18.9	19.9	14.7
AGE AND SEX HOMOGENEOUS GROUPS									
BOYS	8.8	14.3	14.8	13.4	14.2	11.0	16.0	15.5	13.5
GIRLS	6.5	7.0	6.7	6.4	5.7	7.4	5.2	7.4	6.5
PLAY TERMINATION									
INTERNAL QUARREL									
BOYS	2.6	2.4	2.9	2.7	2.1	2.2	2.9	1.8	2.5
GIRLS	1.3	2.6	1.8	1.5	1.4	1.1	1.2	0.8	1.6
ALL	2.0	2.5	2.4	2.1	1.8	1.8	2.3	1.6	2.1
EXTERNAL QUARREL									
BOYS	0.5	0.8	1.1	0.7	1.2	1.7	0.9	0.6	1.0
GIRLS	0.7	0.7	1.1	0.9	1.1	0.4	0.8	0.7	0.8
ALL	0.6	0.7	1.1	0.8	1.1	1.2	0.9	0.7	0.9

LENGTH OF PLAY AND PLAY TERMINATION

Figures 42-47 (pp. 167-172)
Table 18 (pp. 173-175)

The duration of a game of each play group was recorded as either "short" -- five minutes or less -- or "long" -- over five minutes and up to ten minutes (the duration of the recess period). As Figure 42 and Table 18 indicate, girls' games last longer than boys' in most school grades, in both the high-level and the low-level schools. Both boys and girls in the high-level schools play "long" games more frequently than boys or girls in the low-level schools. Games terminate either because they come to their natural end or because they just "fade out" (Figures 43-44, Table 18), or, and this is the most frequent reason, games are stopped during recess because of the cruel ringing of the schoolbell (Figure 46, Table 18), or finally, because of a number of other minor reasons, specified in the record sheet. Sometimes, after a game terminates (if not caused by the bell), a new play of the same game or even another game is started (Figure 45, Table 18).

It is important to realize, as we have discovered in observations conducted after school hours (not included in this Report), that at least in the case of low-level children, about two thirds of their games do not last for more than ten minutes even when there is no schoolbell that interferes with the serious business of playing!

We have already seen that internal quarrel or external interference of other children rarely leads to play termination (Figure 41, p. 162). It also appears that teachers rarely interfere in children's games during recess; neither does sudden rain or wind often interfere with the play of Israeli children: on rainy days, they tend to remain indoors, to begin with.

It is interesting to compare Figure 46 with Figure 47. The strong similarities in the shape of the curves of the graphs of "length of the game" and "schoolbell" are indicative of the reliability of our results. It may be reasonably assumed that a positive correlation exists between the proportion of "long" games and the proportion of games terminated by the schoolbell. This correlation stands out clearly in the Figures representing these two variables, which were recorded independently.

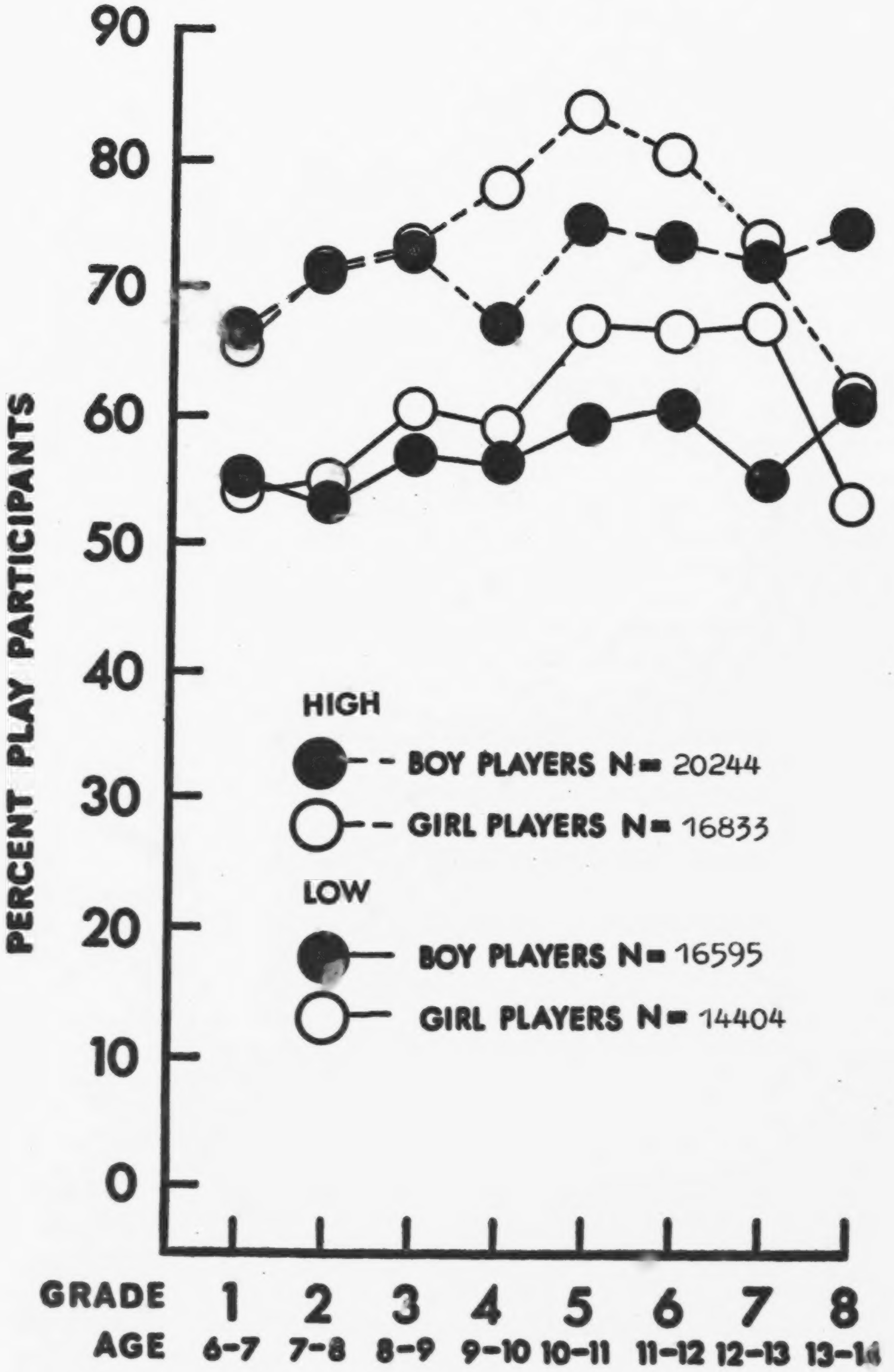

FIGURE 42
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL HIGH-LEVEL AND LOW-LEVEL SCHOOLS, WHO PLAYED LONG (5 - 10 MINUTES) GAMES, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

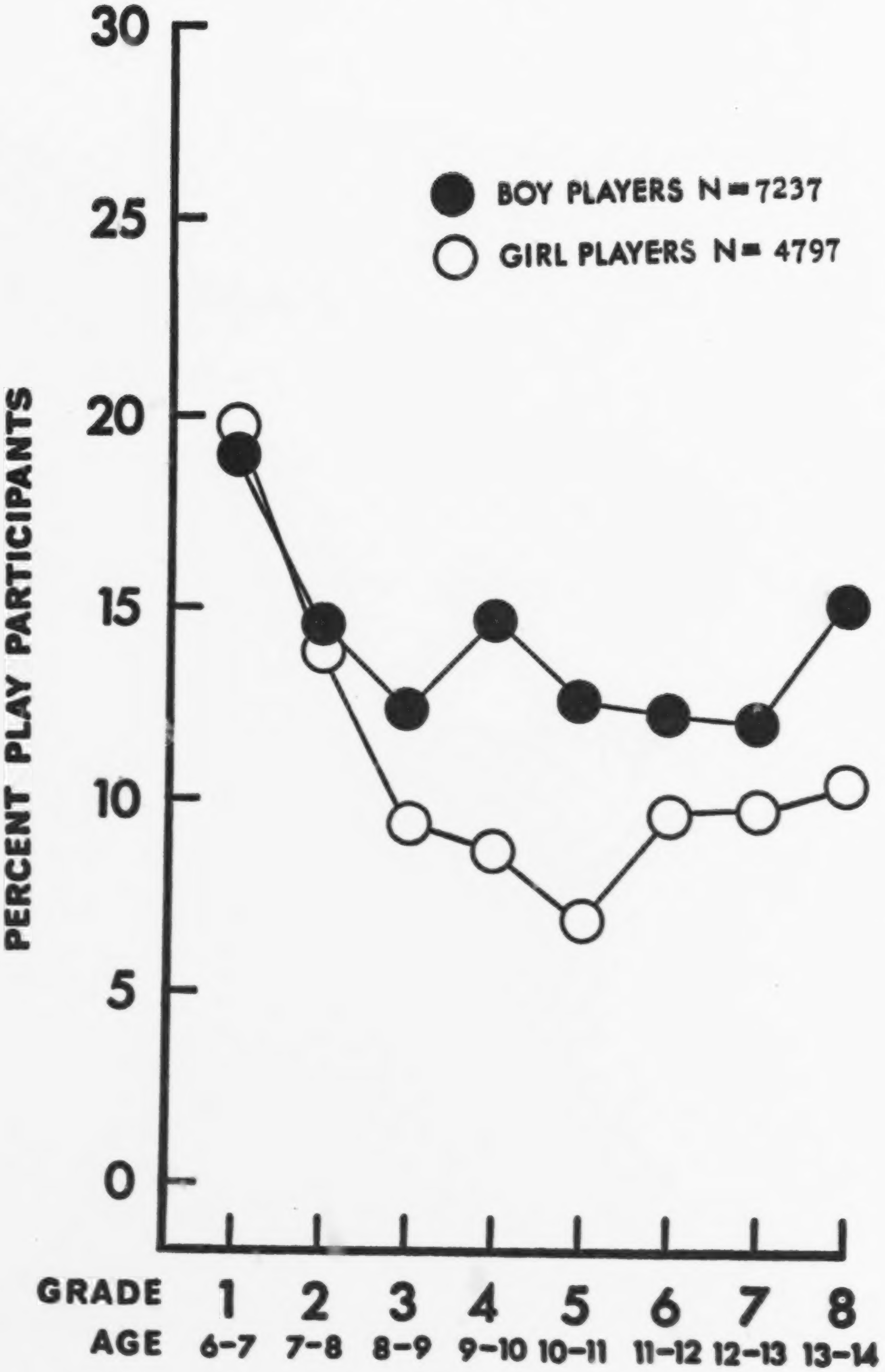

FIGURE 43
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL HIGH-LEVEL SCHOOLS, WHOSE PLAY WAS TERMINATED BY ITS NATURAL END OR BY FADING OUT, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

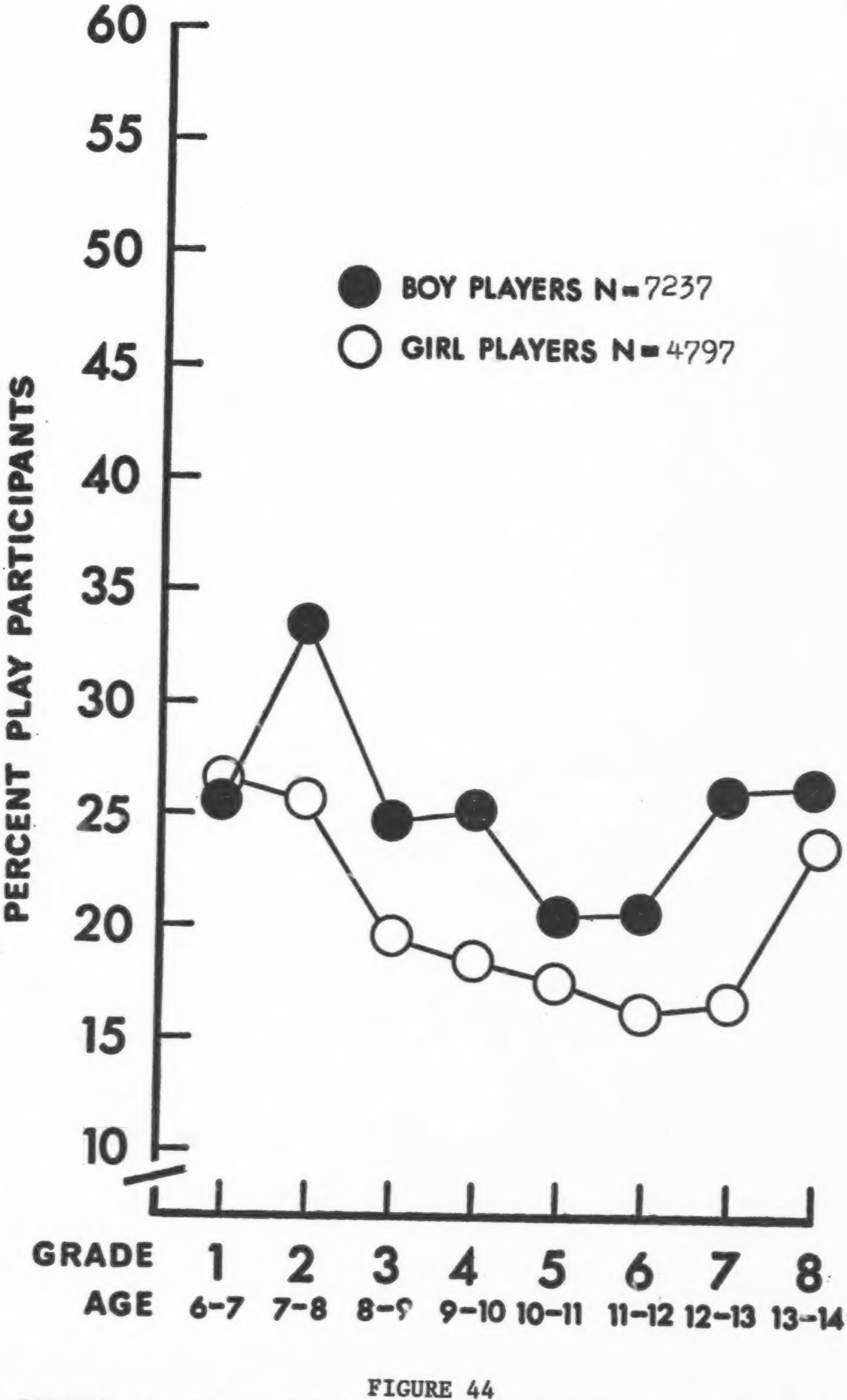

FIGURE 44
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL LOW-LEVEL SCHOOLS, WHOSE PLAY WAS TERMINATED BY ITS NATURAL END OR BY FADING OUT, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

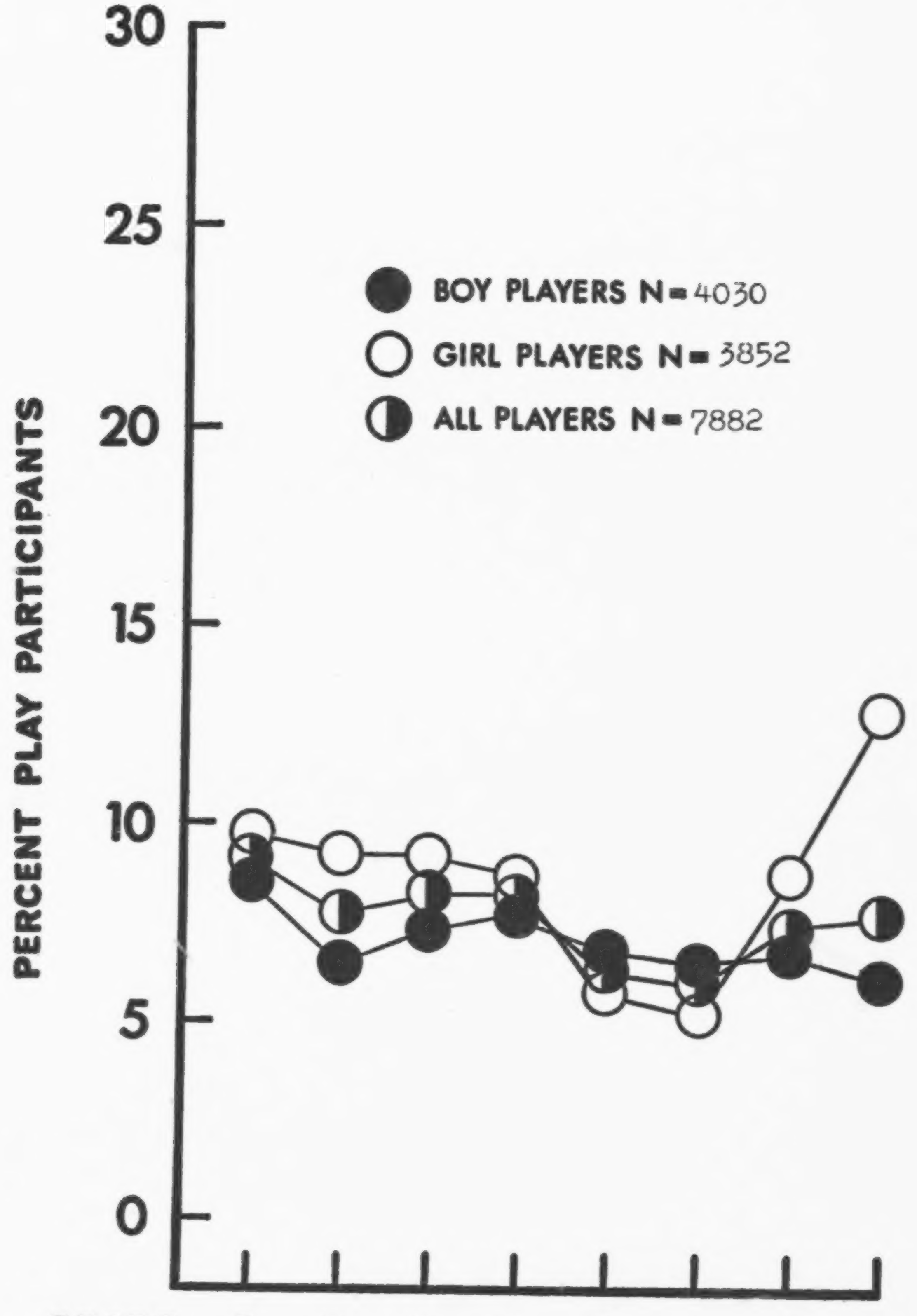

FIGURE 45
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS IN ALL SCHOOLS, WHOSE PLAY WAS TERMINATED BY STARTING A NEW GAME, OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS IN EACH GRADE

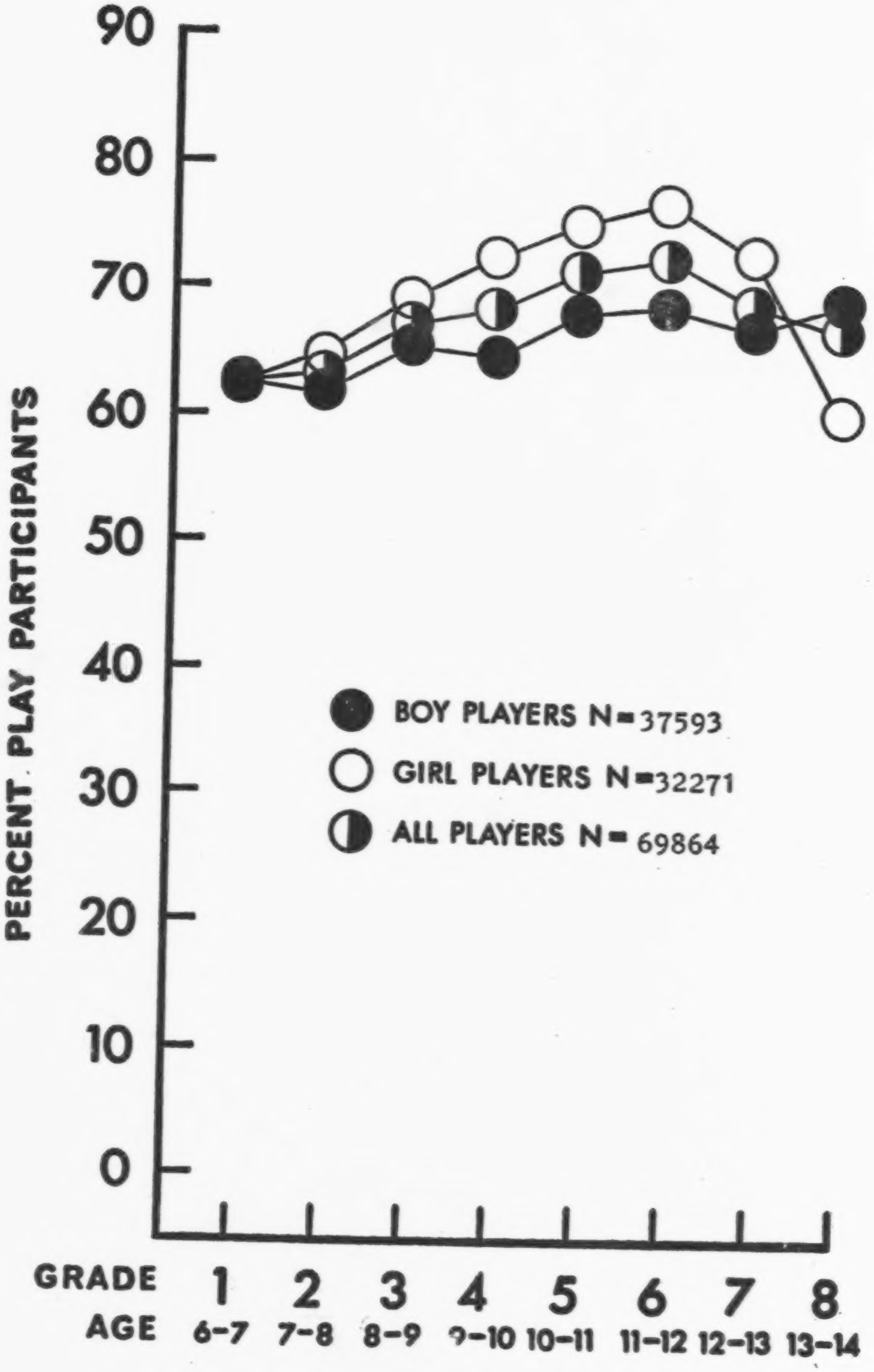

FIGURE 46
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL SCHOOLS WHOSE PLAY WAS TERMINATED BY THE SCHOOL-BELL, OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS IN EACH GRADE

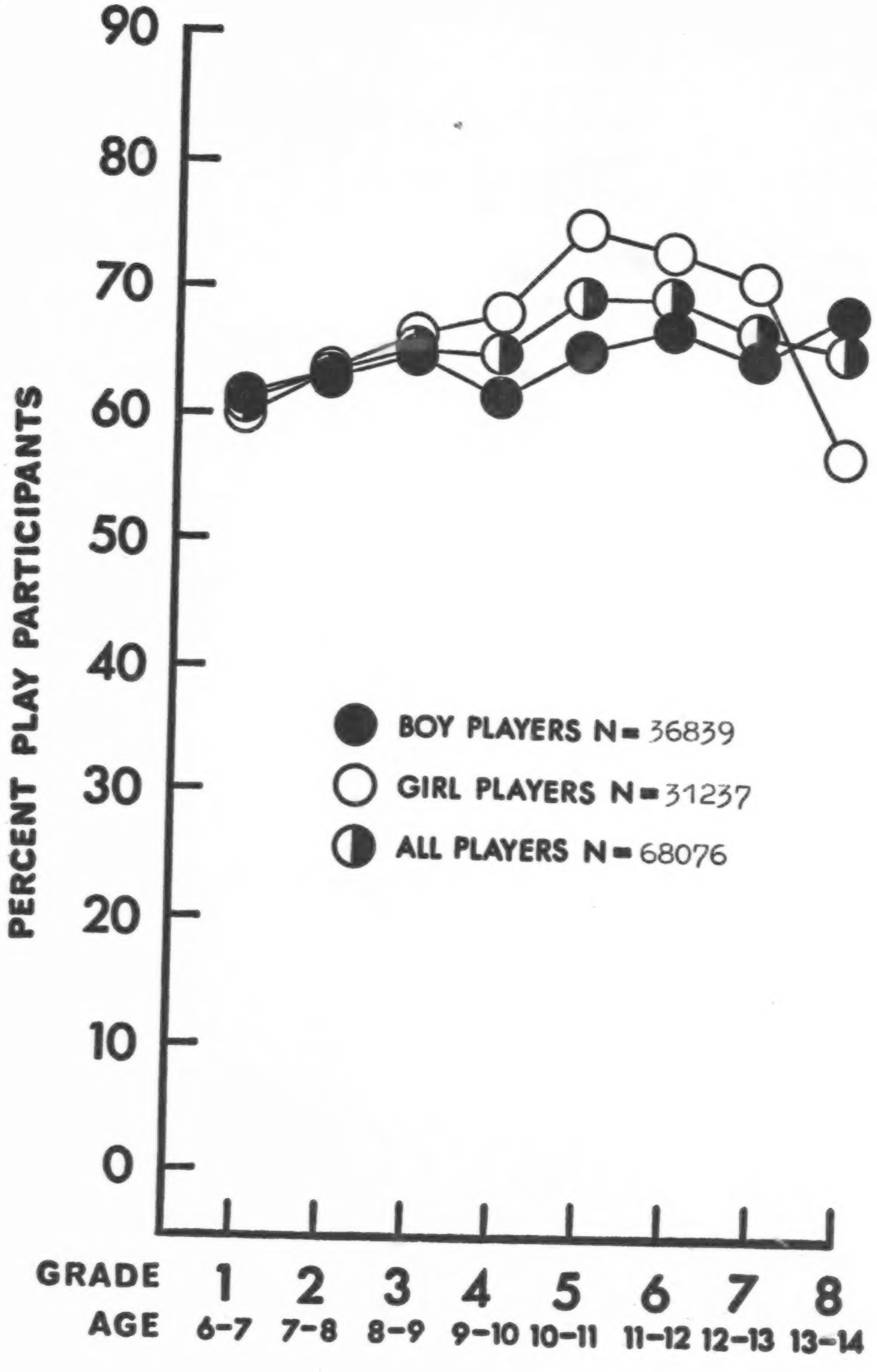

FIGURE 47
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL SCHOOLS, WHO PLAYED LONG (5 - 10 MINUTES) GAMES, OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS IN EACH GRADE

TABLE 18

NUMBER OF PLAYERS WHO PLAYED "LONG" GAMES AND WHOSE GAMES TERMINATED FOR SPECIFIED CAUSES AND THEIR PERCENTAGES OUT OF THE TOTAL NUMBER OF PLAYERS

NUMBER

SCHOOLS			"LONG" GAMES			REASONS FOR TERMINATION			
						NATURAL END OR FADED OUT		NEW GAME	BELL
			ALL HIGH	ALL LOW	ALL SCHOOLS	ALL HIGH	ALL LOW	ALL SCHOOLS	ALL SCHOOLS
TOTAL		BOYS	20244	16595	36839	3876	7237	4030	37593
		GIRLS	16833	14404	31237	2574	4797	3852	32271
		ALL	37077	30999	68076	6450	12034	7882	69864
GRADE	8	BOYS	1947	1380	3327	276	588	294	3366
		GIRLS	489	443	932	117	198	208	967
		ALL	2436	1823	4259	393	786	502	4333
	7	BOYS	2594	1772	4366	439	820	461	4538
		GIRLS	1356	1291	2647	181	320	330	2705
		ALL	3950	3063	7013	620	1140	791	7243
	6	BOYS	2553	2293	4846	430	786	470	4980
		GIRLS	2116	1922	4038	258	452	288	4187
		ALL	4669	4215	8884	688	1238	758	9167
	5	BOYS	2364	2678	5042	404	934	529	5266
		GIRLS	2399	2354	4753	198	610	358	4750
		ALL	4763	5032	9795	602	1544	887	10016
	4	BOYS	2540	2483	5023	550	1103	629	5234
		GIRLS	3023	2592	5615	341	803	714	5957
		ALL	5563	5075	10638	891	1906	1343	11191
	3	BOYS	2942	2305	5247	505	992	585	5266
		GIRLS	2669	2349	5018	344	769	699	5260
		ALL	5611	4654	10265	849	1761	1284	10526
	2	BOYS	2957	1973	4930	605	1234	499	4852
		GIRLS	2869	2035	4904	560	958	719	5028
		ALL	5826	4008	9834	1165	2192	1218	9880
	1	BOYS	2347	1711	4058	667	780	563	4091
		GIRLS	1912	1418	3330	575	687	536	3417
		ALL	4259	3129	7388	1242	1467	1099	7508

TABLE 18, CONTINUATION

"LONG" GAMES	PERCENTAGE IN GRADES								
	1	2	3	4	5	6	7	8	TOTAL
ALL HIGH									
BOYS	66.3	71.4	72.8	67.7	74.9	73.9	72.1	74.7	71.6
GIRLS	65.4	71.5	73.1	78.0	84.0	80.1	74.0	61.9	74.6
ALL	65.9	71.5	72.9	72.9	79.3	76.6	72.7	71.8	72.9
ALL LOW									
BOYS	55.8	53.1	57.2	56.2	58.9	60.8	55.8	61.1	57.3
GIRLS	54.0	54.9	60.5	59.4	67.6	67.2	67.9	53.1	60.9
ALL	55.0	54.0	58.8	57.8	62.7	63.6	60.3	58.9	58.9
ALL SCHOOLS									
BOYS	61.4	62.8	65.0	61.5	65.5	67.1	64.4	68.4	64.3
GIRLS	60.0	63.6	66.6	68.2	75.0	73.4	70.9	57.4	67.6
ALL	60.8	63.2	65.8	64.9	69.8	69.8	66.7	65.6	65.8

TABLE 18, CONTINUATION

	PERCENTAGE IN GRADES								
	1	2	3	4	5	6	7	8	TOTAL
TERMINATION									
NATURAL END OR FADED OUT									
ALL HIGH									
BOYS	19.0	14.7	12.6	14.8	12.8	12.4	12.2	10.6	13.8
GIRLS	19.7	13.9	9.5	8.8	7.0	9.8	9.9	15.2	11.4
ALL	19.3	14.3	11.1	11.7	10.0	11.3	11.4	11.7	12.7
ALL LOW									
BOYS	25.6	33.3	24.8	25.2	20.5	20.9	26.0	26.3	25.1
GIRLS	26.5	25.7	19.6	18.4	17.6	16.1	16.9	23.9	20.3
ALL	26.0	29.5	22.2	21.8	19.3	18.8	22.6	25.6	22.9
NEW GAME									
ALL SCHOOLS									
BOYS	8.6	6.4	7.3	7.8	6.9	6.5	6.8	6.1	7.1
GIRLS	9.7	9.3	9.3	8.7	5.7	5.3	8.9	13.0	8.4
ALL	9.1	7.8	8.3	8.2	6.3	6.0	7.6	7.8	7.6
BELL									
ALL SCHOOLS									
BOYS	62.3	61.9	65.8	64.6	68.3	69.0	67.3	69.6	65.9
GIRLS	62.0	64.8	69.6	72.3	75.3	77.0	72.7	60.4	70.0
ALL	62.2	63.4	67.6	68.5	71.5	72.4	69.2	67.3	67.7

PLAY AREA AND PLAY SURFACE

Figures 48-55 (pp. 177-184)
Table 19 (pp. 185-187)

More children play on paved surfaces (Figures 48-49 and Table 19) than on any other kind of surface. In fact, 40 percent of the high-level children and 49 percent of the low-level children play on such surfaces, although there is no doubt that the proportions of paved to unpaved surfaces at school are smaller. It should be noted also that in practically all cases more girls play on hard surfaces than do boys (see also Figures 50-51), whereas the reverse is true of the softer surface of natural soil (Figures 52-53). Contrary to what might have been expected, girls do not, on the whole, play more frequently indoors than boys (Figures 54-55). Other types of surface mentioned in the record sheet were little used except for the lawn in kibbutz schools, where it covers a considerable part of the play surface, and was played on by 22.4 percent boy players and by 9.1 percent girl players (note that "lawn" is, again, not a hard surface).

A comparison between the Figures of the high-level and low-level schools often shows surprisingly similar trends with age. While examining the Figures it should be noted that they are not all drawn to the same scale.

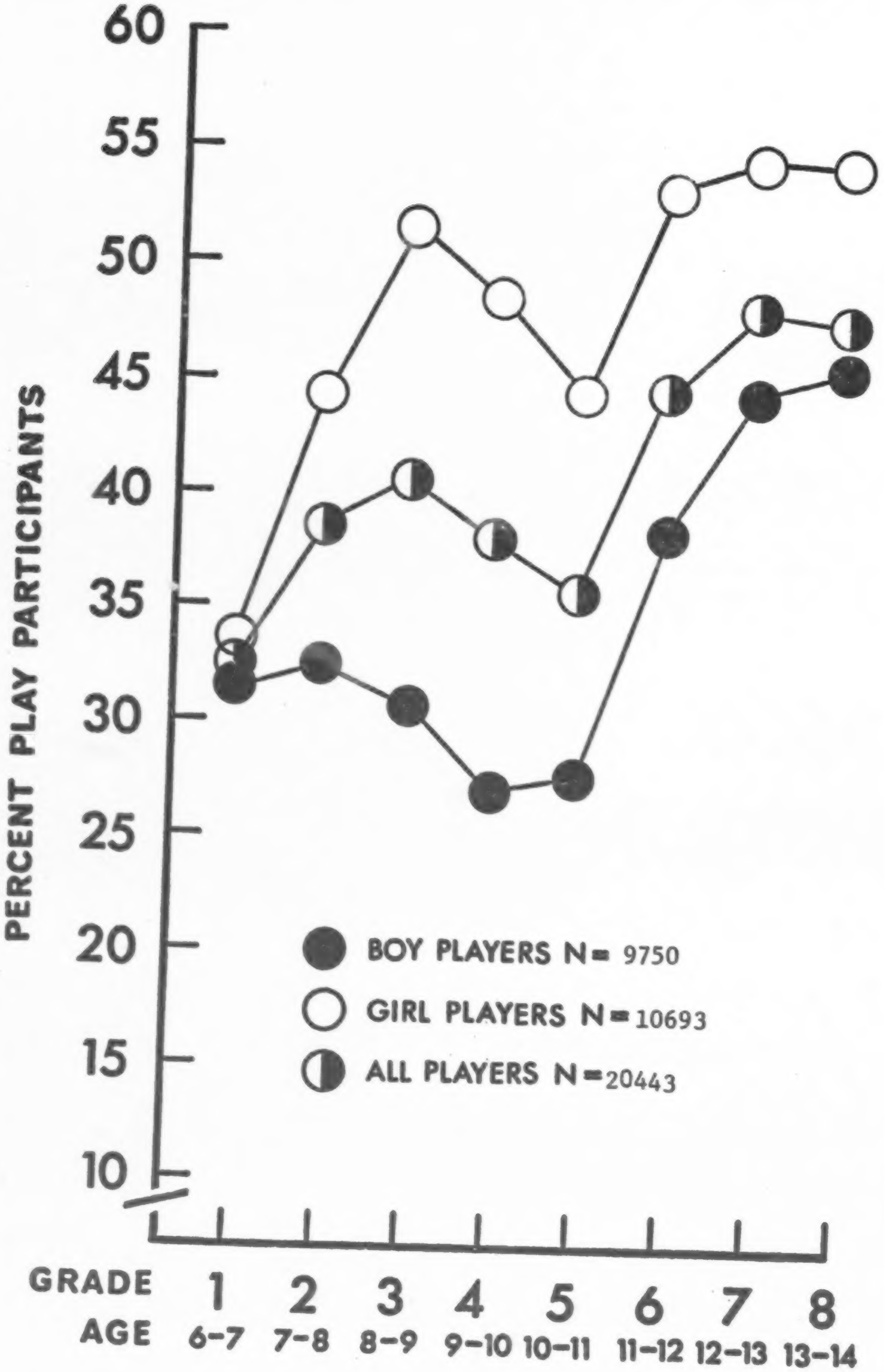

FIGURE 48

PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL HIGH-LEVEL SCHOOLS WHO PLAYED ON PAVED GROUND OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS

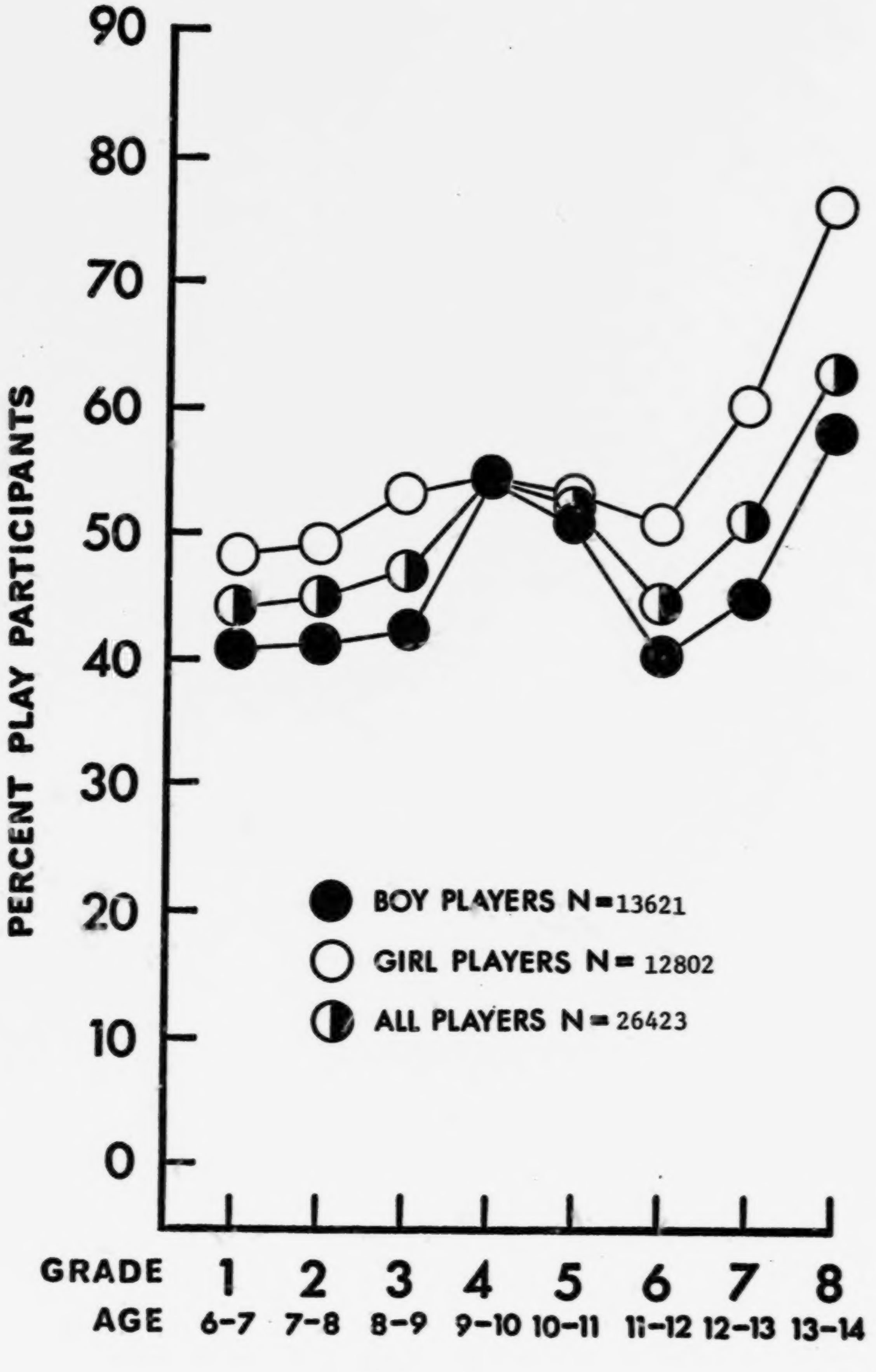

FIGURE 49
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL LOW-LEVEL SCHOOLS WHO PLAYED ON PAVED GROUND OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS

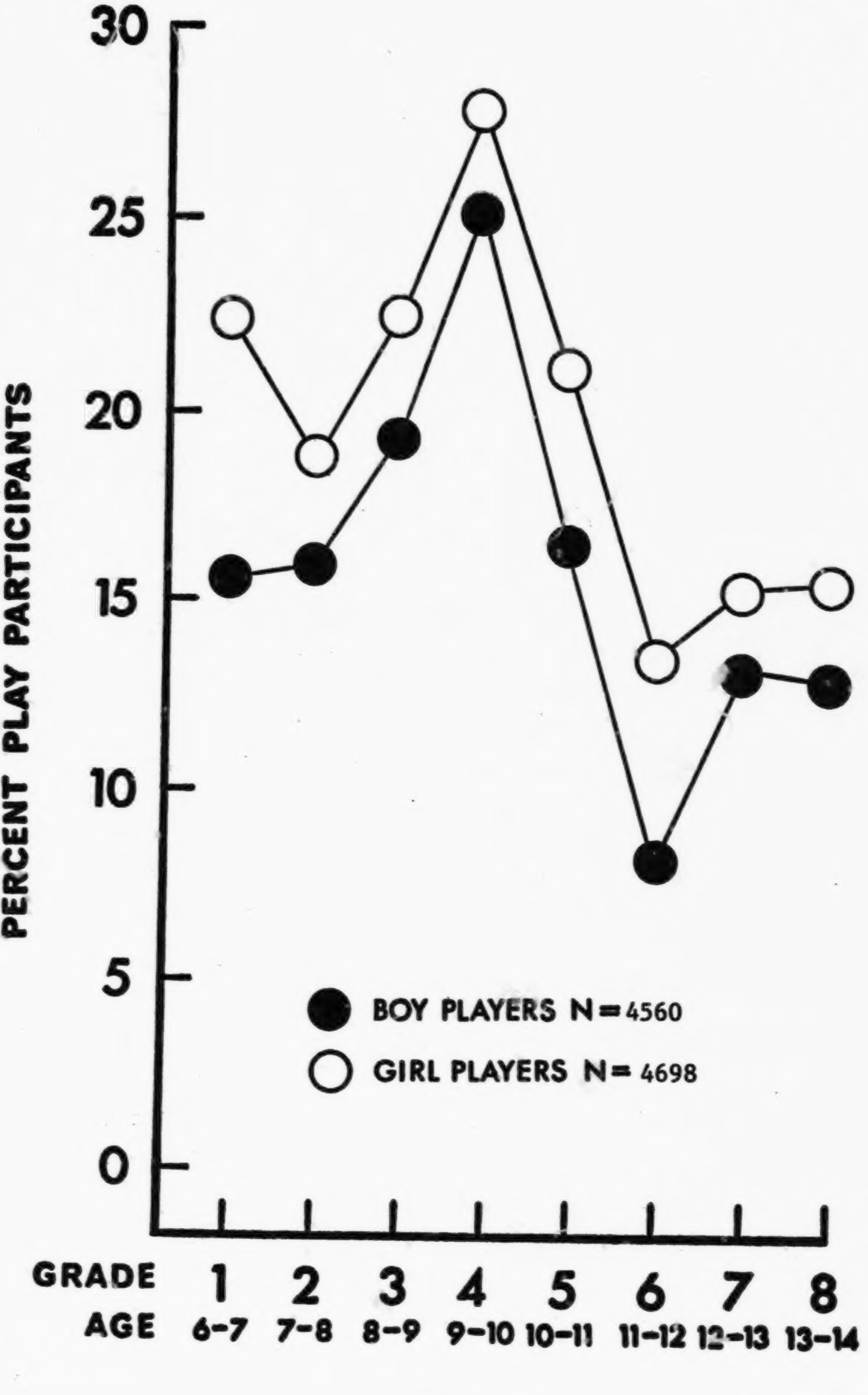

FIGURE 50
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL HIGH-LEVEL SCHOOLS WHO PLAYED ON SEMI-PAVED ("KURKAR") GROUND OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS

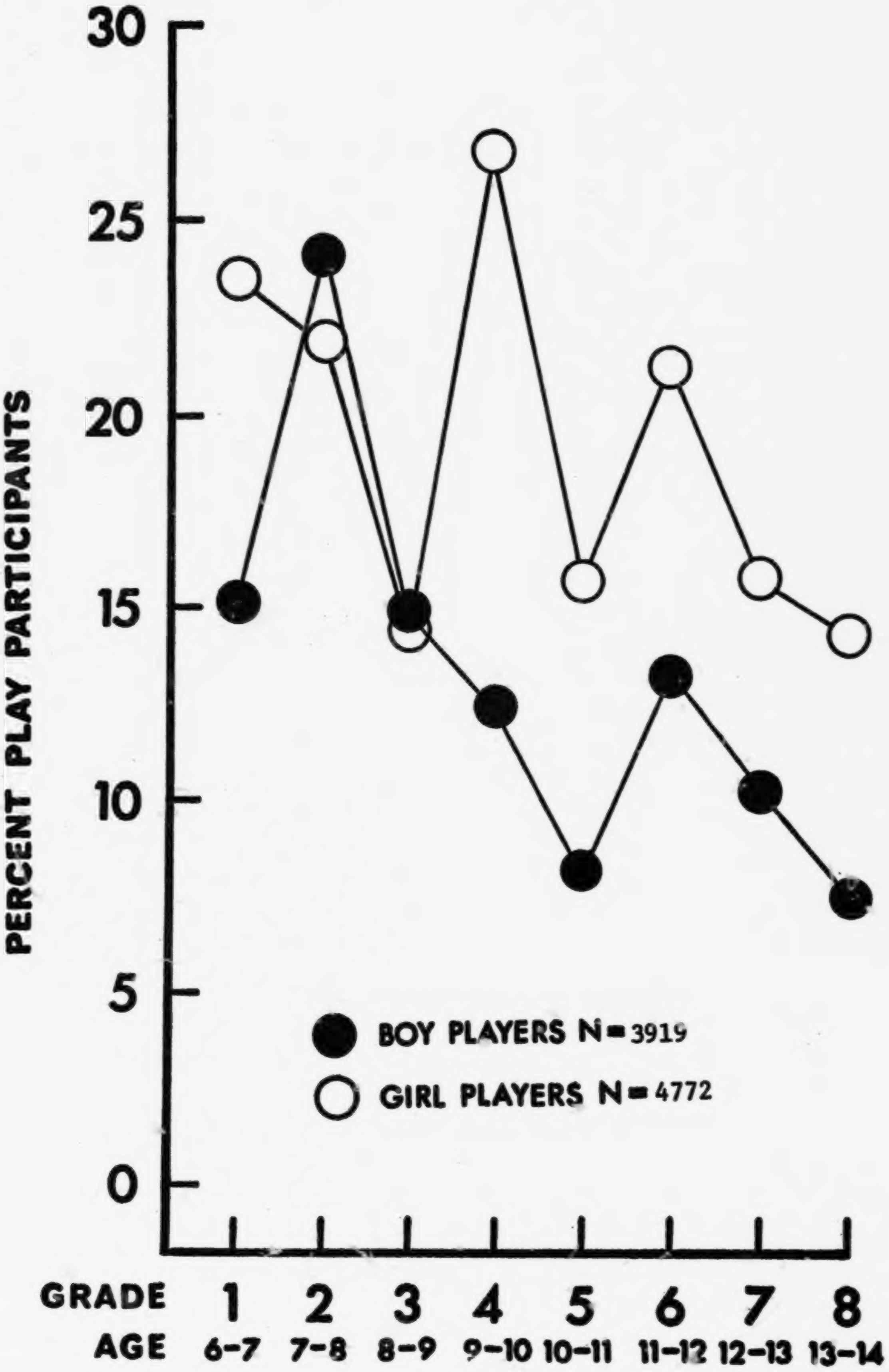

FIGURE 51
PERCENT OF BOY PLAYERS AND GIRL PLAYERS BY GRADE IN ALL LOW-LEVEL SCHOOLS WHO PLAYED ON SEMI-PAVED ("KURKAR") GROUND OUT OF THE TOTAL NUMBER OF BOY PLAYERS AND GIRL PLAYERS

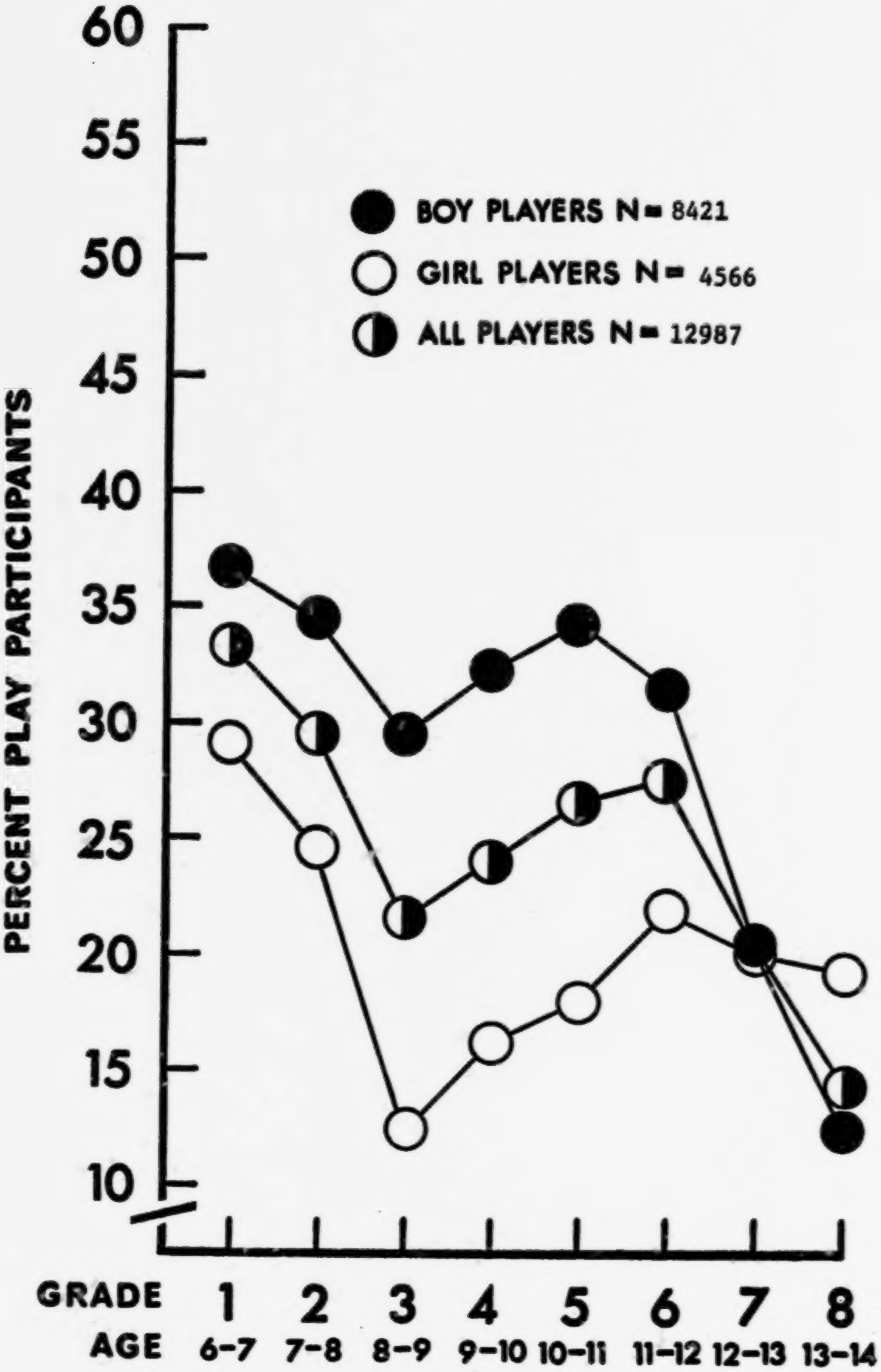

FIGURE 52
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL HIGH-LEVEL SCHOOLS WHO PLAYED ON NATURAL SOIL OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS

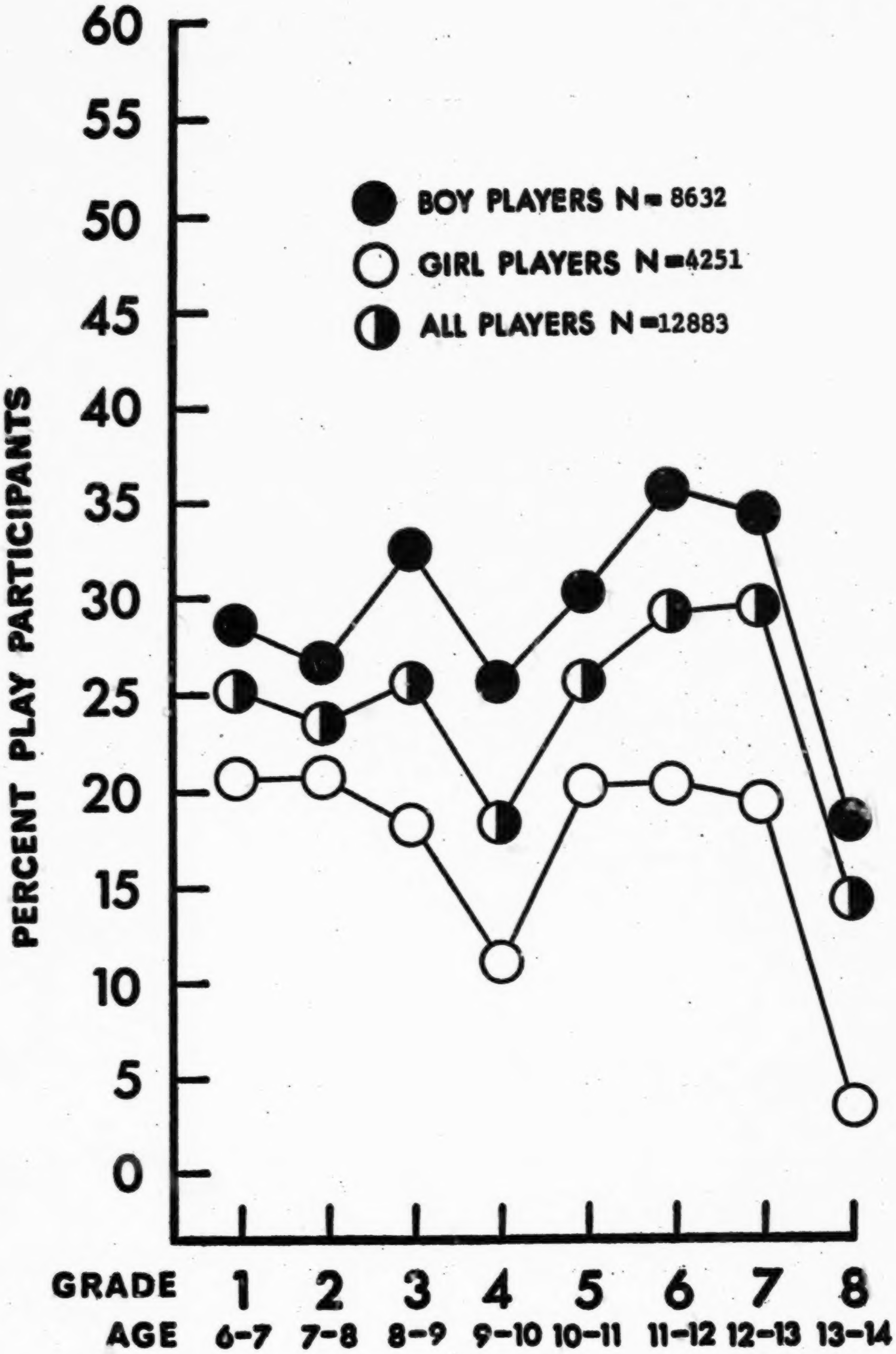

FIGURE 53
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL LOW-LEVEL SCHOOLS WHO PLAYED ON NATURAL SOIL OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS

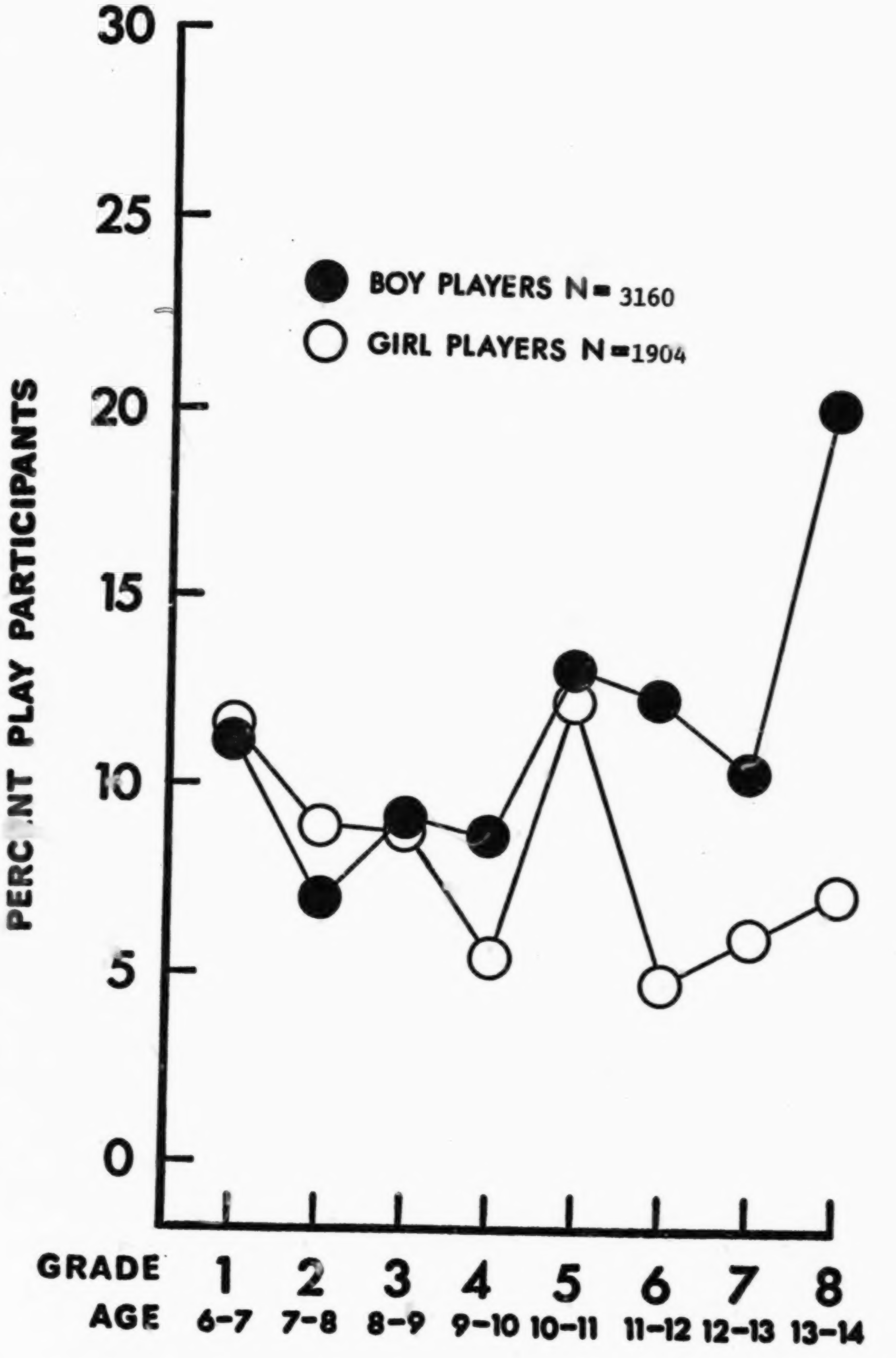

FIGURE 54
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL HIGH-LEVEL SCHOOLS WHO PLAYED INDOORS OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS

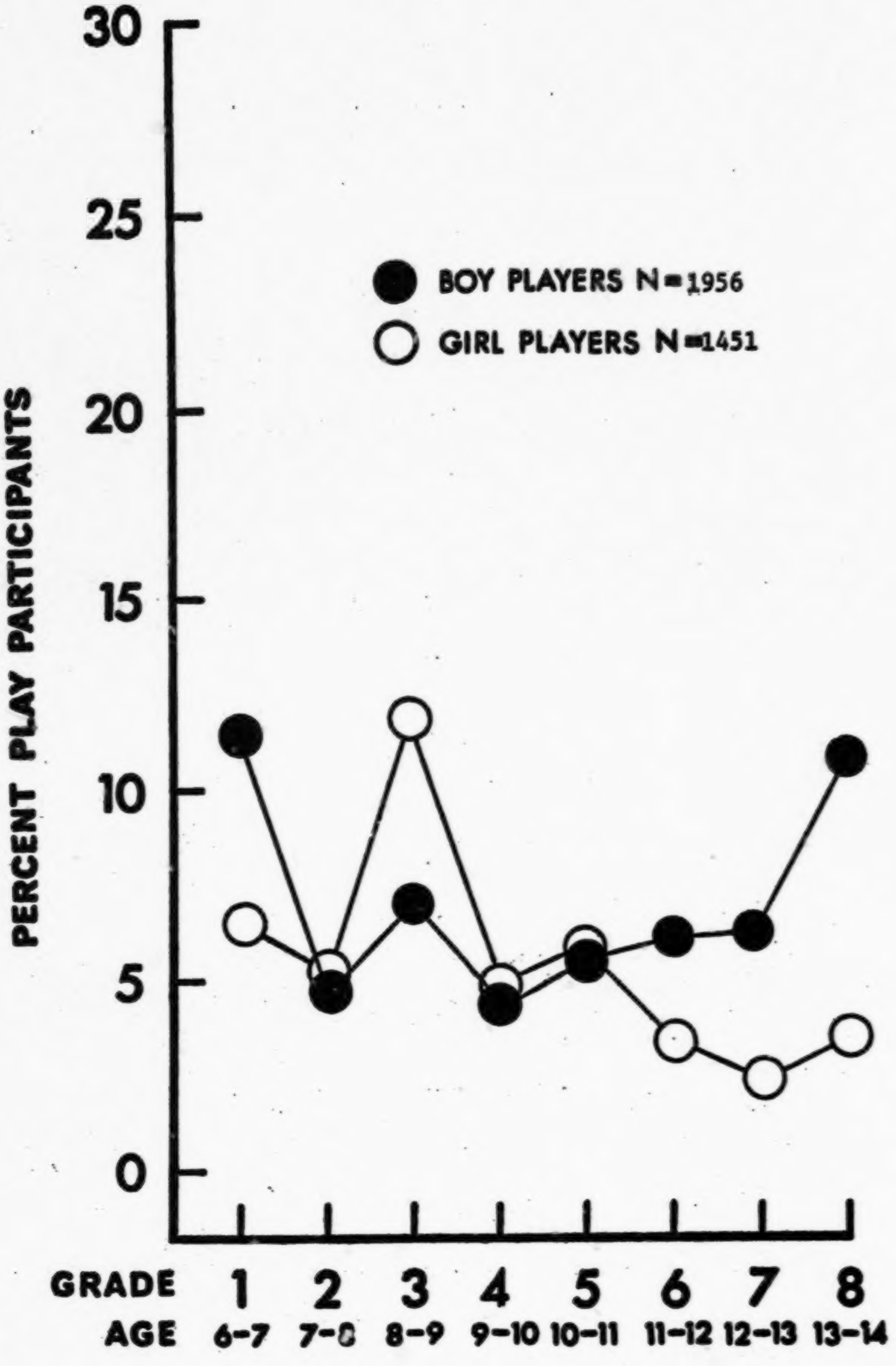

FIGURE 55
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL LOW-LEVEL SCHOOLS WHO PLAYED INDOORS OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS

TABLE 19

NUMBER OF PLAY PARTICIPANTS WHO PLAYED IN SPECIFIED PLAY AREAS AND THEIR PERCETAGE OUT OF THE TOTAL NUMBER OF PLAYERS

NUMBER

		PAVED		"KURKAR"		NATURAL SOIL		INDOORS	
GRADE		HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW
TOTAL	BOYS	9750	13621	4560	3919	8421	8632	3160	1956
	GIRLS	10693	12802	4698	4772	4566	4251	1904	1451
	A L L	20443	26423	9258	8691	12987	12883	5064	3407
8	BOYS	1195	1328	340	175	328	420	527	247
	GIRLS	430	639	122	121	154	33	57	29
	A L L	1625	1967	462	296	482	453	584	276
7	BOYS	1613	1460	477	329	741	1104	378	200
	GIRLS	1003	1161	281	305	373	375	110	48
	A L L	2616	2621	758	634	1114	1479	488	248
6	BOYS	1333	1527	283	506	1105	1354	437	231
	GIRLS	1411	1466	357	609	582	586	129	102
	A L L	2744	2993	640	1115	1687	1940	566	333
5	BOYS	878	2341	520	373	1092	1389	423	257
	GIRLS	1277	1879	602	553	517	709	353	206
	A L L	2155	4220	1122	926	1609	2098	776	463
4	BOYS	1016	2418	945	560	1211	1141	332	200
	GIRLS	1902	2403	1092	1176	629	491	215	221
	A L L	2918	4821	2037	1736	1840	1632	547	421
3	BOYS	1251	1725	786	605	1211	1334	373	286
	GIRLS	1896	2115	826	572	454	730	329	475
	A L L	3147	3840	1612	1177	1665	2064	702	761
2	BOYS	1343	1556	659	904	1433	999	292	179
	GIRLS	1795	1857	763	818	1005	781	366	199
	A L L	3138	3413	1422	1722	2438	1780	658	378
1	BOYS	1121	1266	550	467	1300	891	398	356
	GIRLS	979	1282	655	618	852	546	345	171
	A L L	2100	2548	1205	1085	2152	1437	743	527

TABLE 19, CONTINUATION

		PERCENTAGE IN GRADES								
		1	2	3	4	5	6	7	8	TOTAL
PAVED	ALL HIGH									
	BOYS	31.5	32.4	30.8	27.0	27.7	38.2	44.7	45.7	34.3
	GIRLS	33.3	44.3	51.5	48.6	44.5	53.2	54.7	54.4	47.0
	A L L	32.3	38.3	40.6	38.0	35.6	44.7	48.1	47.7	40.0
	ALL LOW									
	BOYS	41.0	41.6	42.4	54.5	51.1	40.5	45.8	58.5	46.7
	GIRLS	48.7	49.8	53.6	54.8	53.6	51.0	60.5	76.3	53.7
	A L L	44.5	45.7	47.9	54.7	52.2	45.0	51.3	63.3	49.9
"KURKAR"	ALL HIGH									
	BOYS	15.5	15.9	19.3	25.1	16.4	8.1	13.2	13.0	16.0
	GIRLS	22.3	18.8	22.4	27.9	21.0	13.5	15.3	15.4	20.7
	A L L	18.5	17.3	20.8	26.6	18.6	10.4	13.9	13.6	18.1
	ALL LOW									
	BOYS	15.1	24.1	14.9	12.6	8.1	13.4	10.3	7.7	13.4
	GIRLS	23.5	21.9	14.5	26.8	15.8	21.2	15.9	14.5	20.0
	A L L	19.0	23.0	14.7	19.7	11.4	16.8	12.4	9.5	16.4

TABLE 19, CONTINUATION

		PERCENTAGE IN GRADES								
		1	2	3	4	5	6	7	8	TOTAL
NATURAL SOIL	ALL HIGH									
	BOYS	36.6	34.5	29.8	32.2	34.4	31.6	20.5	12.5	29.6
	GIRLS	29.0	24.8	12.3	16.1	18.0	22.0	20.3	19.5	20.1
	ALL	33.1	29.7	21.5	24.0	26.6	27.5	20.5	14.2	25.4
	ALL LOW									
	BOYS	28.9	26.7	32.8	25.7	30.3	35.9	34.6	18.5	29.6
	GIRLS	20.7	20.9	18.5	11.2	20.2	20.4	19.6	3.9	17.8
	ALL	25.1	23.8	25.7	18.5	25.9	29.2	29.0	14.6	24.3
INDOORS	ALL HIGH									
	BOYS	11.2	7.0	9.2	8.8	13.3	12.5	10.5	20.1	11.1
	GIRLS	11.7	9.0	8.9	5.5	12.3	4.9	6.0	7.2	8.4
	ALL	11.4	8.0	9.1	7.1	12.8	9.2	9.0	17.1	9.9
	ALL LOW									
	BOYS	11.5	4.8	7.0	4.5	5.6	6.1	6.3	10.9	6.7
	GIRLS	6.5	5.3	12.0	5.0	5.9	3.6	2.5	3.5	6.1
	ALL	9.2	5.1	9.5	4.8	5.7	5.0	4.9	8.9	6.4

AGE GROUPS PLAYING TOGETHER AND APART

A. PLAYING TOGETHER

Figure 56 (p. 190)
Table 20 (p. 191)

When children are free to choose their playmates and these are available in abundance (as is the case at school but rarely outside of it), approximately one quarter of them interact in play with others who are not their own age. However, even age-mixed play groups tend, on the average, to include more children of one's own age than children of other age groups. Mostly, the difference in age is one year. Nonetheless, considering that the school set-up strongly encourages age-group identification, it is perhaps surprising that intra-age-group interaction occurs, and to quite a considerable extent.

As can be seen in Figure 56, and Table 20, the extent of interaction increases at first, decreases in mid-school, and rises again in the upper grades. But whereas boys in the upper grades play in age homogeneous groups to about the same extent as in the low grades, girls play more within their own age group in the upper grades. This lends support to the hypothesis we derived from the finding that girls apply more socially oriented criteria in friendship choices than do boys (pp. 82-83). However, the finding that girls tend to play games which require less involvement with playmates than boys (p. 151) casts some doubt on this interpretation.

Extending Eisenstadt's (1956) theory of age groups, we have suggested (p. 83) that age-heterogeneous play groups will tend to be more prevalent in societies or sub-cultures in which the growing child has to learn to live in a universalistic, achievement-oriented adult society, after growing up in a particularistic-ascriptive childhood environment: only within a society of equals, i.e., the age-group, will the child have the opportunity to face and learn to deal with the social environment in ways that will be expected of him as an adult.

All societies included in our study are universalistic and achievement-oriented to some extent. Furthermore, the school system strongly emphasizes a social division by age, and the kibbutz education system even more so. Nevertheless, there are variations within our sample in the degree of difference between the home and adult environment and in the extent of contact between the two environments.

Thus, children in the kibbutz and in villages are more involved than town children in the adult world and in adult tasks. They are more likely to see their parents working and help them in their work. We would thus expect greater age-homogeneity in our urban than in our rural populations, since the transfer from childhood to adulthood is sharper in the former, and hence the age group has a more important function in urban society as a mediator between the two worlds. Indeed, we have found that the percent of children in Jewish urban schools who play in age-homogeneous groups averages 78.4, whereas the corresponding percentage for Jewish rural schools is 63.3. However, whereas we would have expected, on the same rationale, greater homogeneity in low-level town than in high-level town schools, we have found the opposite to be the case: 84.2 percent of the children in high-level town schools played in such groups, as against 72.5 in the low-level town schools. Moreover, there is little difference in the extent of age homogeneity between the Arab town and village schools: 73.7 as against 75.2. Evidently, the data must be examined in far greater detail before any definite conclusions can be drawn in relation to this question.

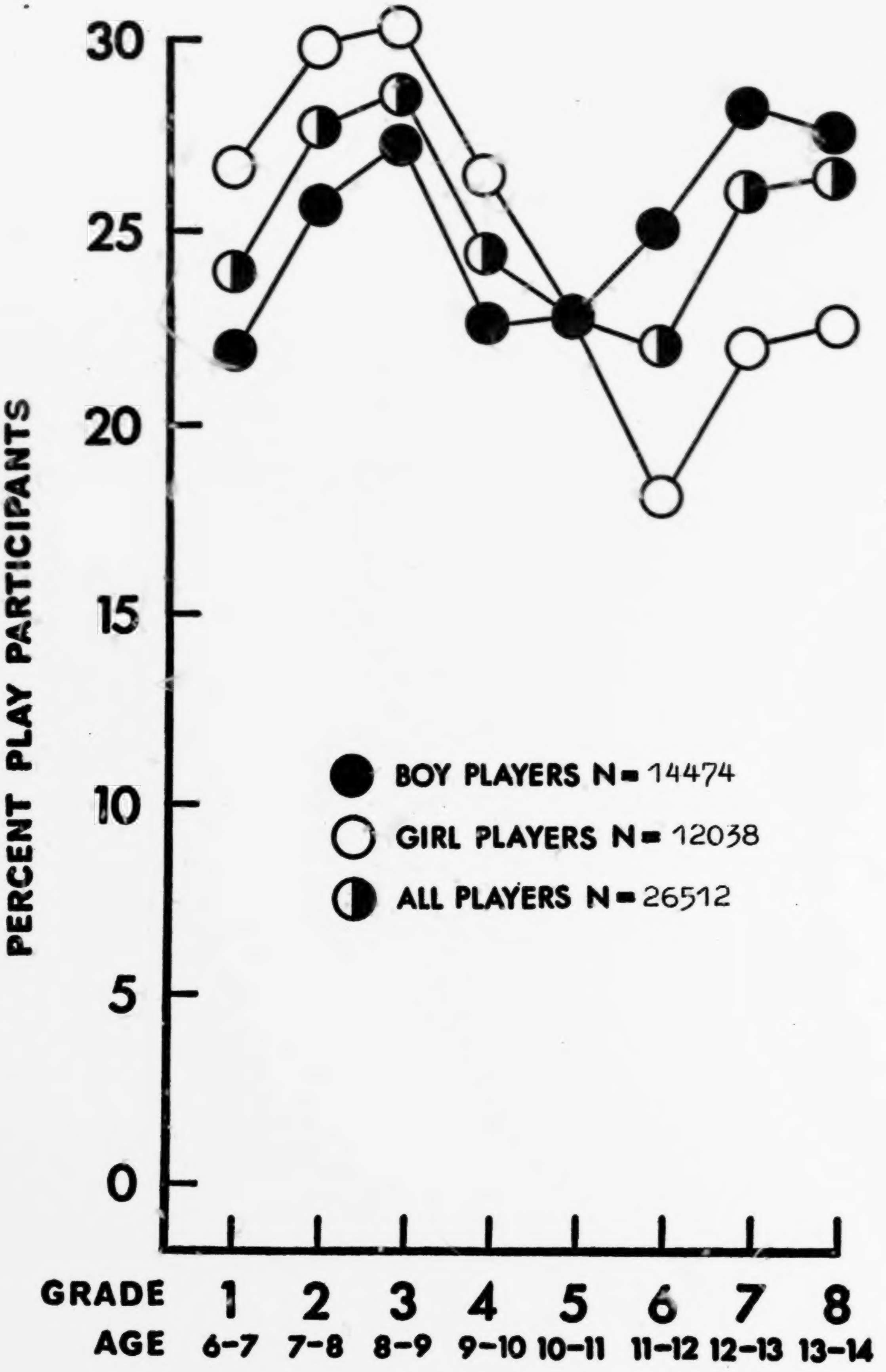

FIGURE 56
PERCENT OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS BY GRADE IN ALL SCHOOLS, WHO PLAYED IN AGE-HETEROGENEOUS GROUPS, OUT OF THE TOTAL NUMBER OF BOY PLAYERS, GIRL PLAYERS AND ALL PLAYERS RESPECTIVELY, IN EACH GRADE

TABLE 20

NUMBER AND PERCENT PLAY PARTICIPANTS BY GRADE IN ALL SCHOOLS WHO PLAYED IN AGE-HETEROGENEOUS GROUPS OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH GRADE

		GRADE								
		1	2	3	4	5	6	7	8	TOTAL
N	BOYS	1456	2026	2215	1853	1791	1828	1938	1367	14474
	GIRLS	1486	2349	2341	2195	1458	1001	833	375	12038
	BOTH	2942	4375	4556	4048	3249	2829	2771	1742	26512
%	BOYS	21.76	25.48	27.10	22.50	22.92	25.01	28.18	27.57	24.95
	GIRLS	26.52	29.89	30.44	26.33	22.81	18.06	22.01	22.64	25.69
	BOTH	23.93	27.67	28.72	24.43	22.87	22.02	25.99	26.34	25.28

B. PLAYING APART

GAMES TYPICAL FOR DIFFERENT AGE GROUPS

Figures 17-30 (pp. 129-142)
Tables 13; 14 (pp. 127, 144)

As may be seen from Figures 17-30 (pp. 129-142), some games are played by children of a very wide age range. Moreover, the age range in which a game is played does not always overlap in the Jerusalem high-level school and the Jerusalem low-level school examined. However, no consistency in the direction of the deviation, in favor of either younger or older children, is apparent.

We have identified 11 classes of games which were played, in both schools, exclusively in the lower grades (1-4) and 8 such games which were played exclusively in the upper grades (5-8). Three classes of games were played in middle grades (3-6) only. These three games were all girls' games, as was one of the lower grade games. All others, were either boys' games (four in the lower and four in the upper grades) or games played by both sexes (six and four in the lower and upper grades, respectively). The fact that predominantly girls' games are concentrated in the middle grades gives more specific meaning to the findings presented in Figure 31 (p. 146), that girls play less with boys in those years than when they are either younger or older.

A preliminary comparison of the games played by younger and older boys did not reveal any characteristics which were not rather obvious, such as that the games of younger children require less specific skills, there is more running, more physical contact, and more games with elements of chance rather than of strategy. A more systematic analysis will be possible after more of our recordings will be analyzed.

One aspect of the games of the two Jerusalem schools that has been analyzed in greater depth is concerned with the structure of play groups as determined by the roles and aims of the participants, in relation to age. Group size, competition, the use of materials in play and the extent of material gain have also been analyzed in relation to age. We now turn to a description of the results of these analyses.

GROUP STRUCTURE

Figures 57-59 (pp. 194-196)
Table 21 (p. 197)

In our analysis of the games of the two Jerusalem schools thus far we have differentiated games involving one or more groups of players (a group being defined as two or more players acting towards the common aim of winning, gaining a preferred position, gaining materially, etc.), and games involving individual players only, each acting to achieve his own personal aim. Within these individually oriented games we distinguished those in which all players pursued similar tasks (as in hopscotch, marbles or wrestling), as against games in which at least two different action patterns existed (such as simple tag -- tagger and 'it', jump rope in pairs -- the one, jumping and turning the rope, the other, just jumping).

As expected, there is an increase in participation in group play with age (Figure 57; Table 21). However, while we also expected an increase in participation in multiple-task individual-games, it turns out that this type of game decreases with age, whereas participation in the one-task individual-game-type increases with age! (Compare Figure 58 with Figure 59). This result may be partly explained with reference to the kinds of competition typical to games of these different structures. Most one-task games turn out to be showdown games (Abt, 1966), i.e., games in which, amongst other characteristics, a player performs without interference by other players: in other words, he has fuller command over his actions. This is not usually the case in the multiple-task games. It may be reasonably assumed that older children are more concerned about the amount of control they have over their activities. Indeed, our comparisons of the games of older as compared with younger children (p. 192) supports this interpretation.

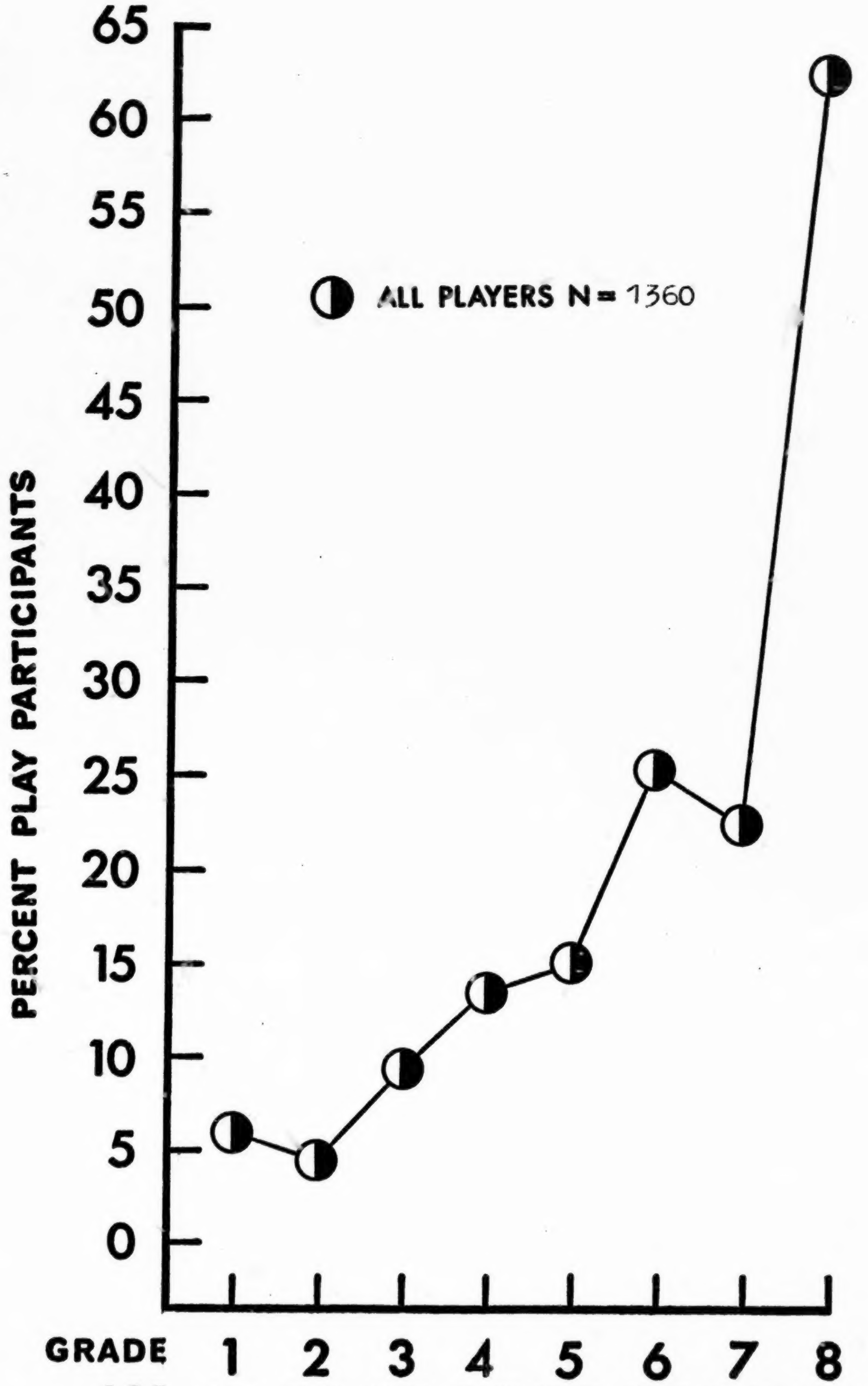

FIGURE 57
PERCENT PLAY PARTICIPANTS BY GRADE IN A LOW-LEVEL SCHOOL WHO PARTICIPATED IN GAMES INVOLVING ONE OR MORE GROUPS OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE

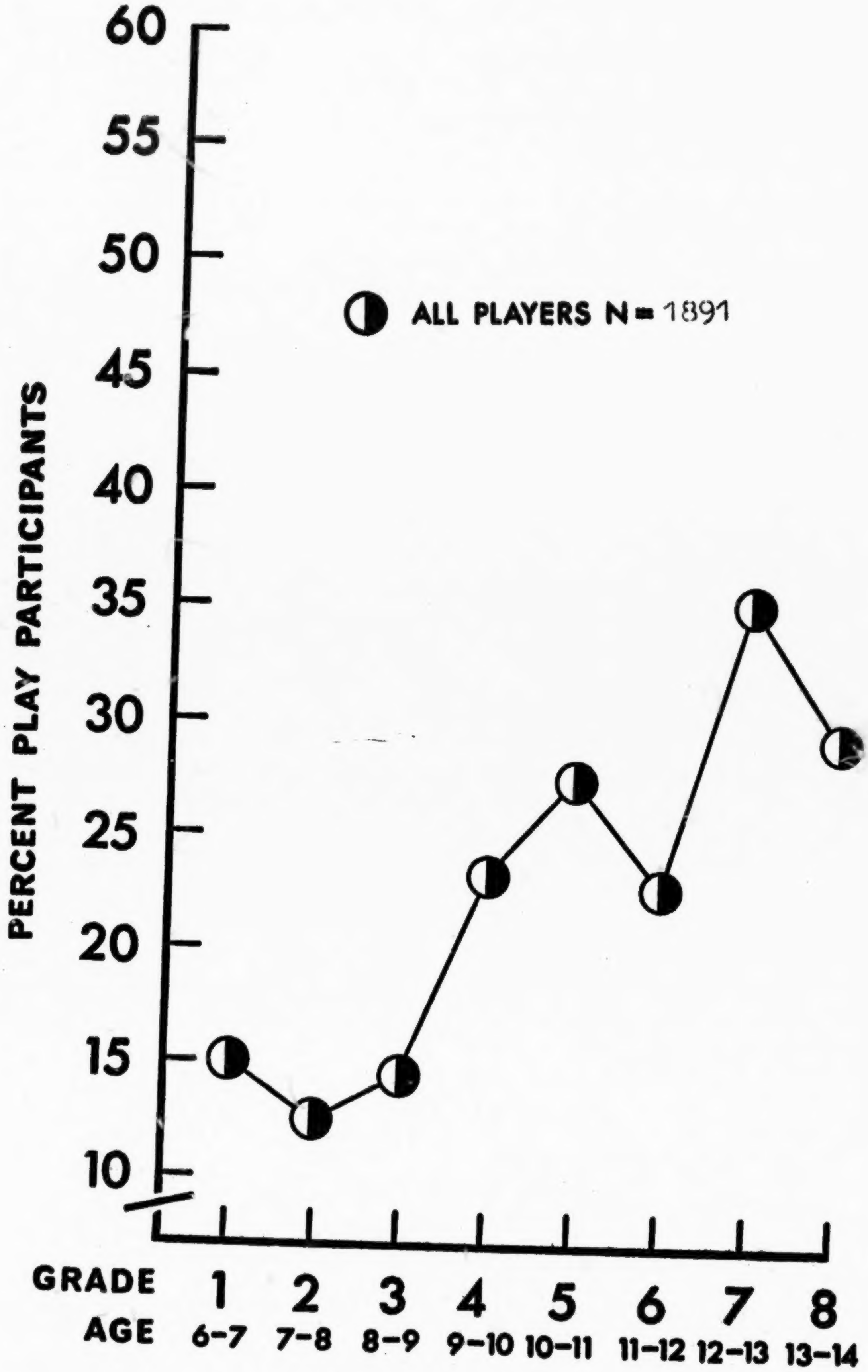

FIGURE 58
PERCENT PLAY PARTICIPANTS BY GRADE IN A LOW-LEVEL SCHOOL WHO PARTICIPATED IN ONE-TASK GAMES WITH INDIVIDUAL AIMS, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES

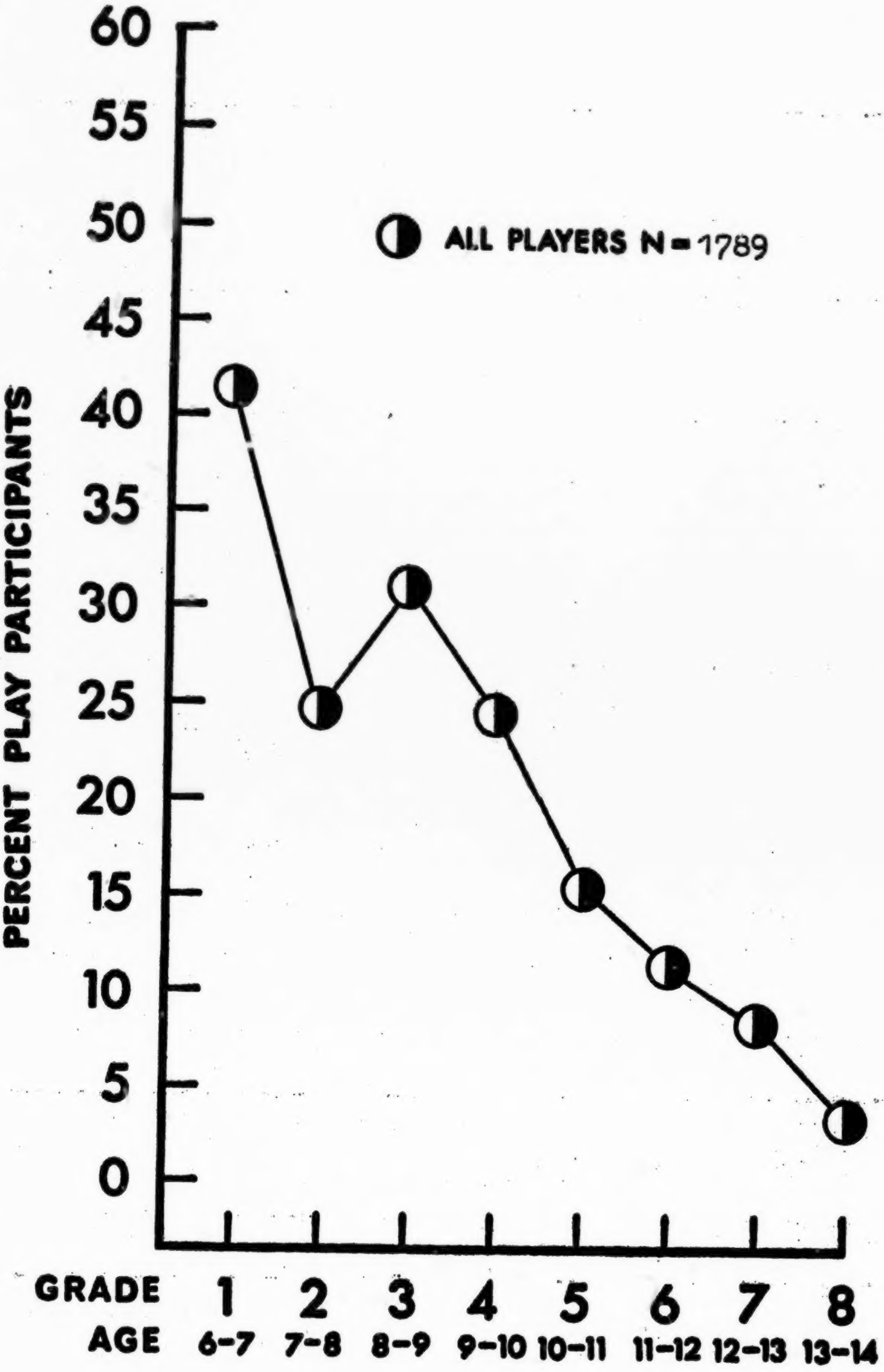

FIGURE 59
PERCENT OF PLAY PARTICIPANTS BY GRADE IN A LOW-LEVEL SCHOOL WHO PARTICIPATED IN MULTIPLE-TASK GAMES WITH INDIVIDUAL AIMS, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES

TABLE 24

NUMBER AND PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL WHO PLAYED GAMES REQUIRING SPECIFIED GROUP STRUCTURES, OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE

			GRADE								
			1	2	3	4	5	6	7	8	TOTAL
GROUP(S)	N	BOYS	24	33	85	203	212	196	153	242	1148
		GIRLS	18	19	16	26	56	42	21	14	212
		BOTH	42	52	101	229	268	238	174	256	1360
	%	BOYS	7.45	5.77	16.60	28.16	22.34	39.36	29.20	67.60	25.76
		GIRLS	4.76	3.43	2.84	2.67	6.96	9.63	8.68	25.45	5.29
		BOTH	6.00	4.62	9.40	13.53	15.28	25.48	22.72	61.99	16.07
INDIVIDUAL AIMS											
ONE TASK	N	BOYS	26	67	51	148	288	151	201	98	1030
		GIRLS	80	73	109	246	196	63	70	24	861
		BOTH	106	140	160	394	484	214	271	122	1891
	%	BOYS	8.07	11.71	9.96	20.53	30.35	30.32	38.36	27.37	23.11
		GIRLS	21.16	13.18	19.36	25.31	24.35	14.45	28.93	43.64	21.50
		BOTH	15.14	12.43	14.88	23.27	27.59	22.91	35.38	29.54	22.35
MULTIPLE TASKS	N	BOYS	101	178	195	198	132	59	55	11	930
		GIRLS	190	102	138	217	144	51	12	5	859
		BOTH	291	280	334	415	276	110	67	16	1789
	%	BOYS	31.37	31.12	38.28	27.46	13.91	11.85	10.50	3.07	20.87
		GIRLS	50.26	18.41	24.51	22.33	17.89	11.70	4.96	9.09	21.45
		BOTH	41.57	24.87	31.07	24.51	15.74	11.78	8.75	3.87	21.14

GROUP SIZE

Figures 60-62 (pp. 201-203)
Tables 22-25 (pp. 204-206)

It stands out clearly, both in Figure 60 and in Table 23 that the percentage of children who play in small sized groups is larger the younger they are. This finding is in accord with the hypothesis derived from our first stage data (p. 78).

Taking group size as an index for the capacity to get organized and interact in groups, we also predicted that the size of play groups will tend to increase with school level (p. 78). Figure 61 and Table 24 present the relevant data for the high-level and low-level schools. The hypothesis is fully confirmed.

This finding would gain a more precise meaning if it could be established with regard to the same games as played in high-level and low-level schools. Since age is also a determinant of group size this factor also has to be kept constant when making this comparison. Only one such comparison has been made thus far, of the game known as "individual tag", "simple tag", "ordinary tag" or just plain "tag". This game was the one most commonly played in our low-level Jerusalem school and second only to jump rope in our high-level Jerusalem school. The results of the comparison, shown in Table 22, indicate clearly that (a) the percent of tag players in groups of up to five participants is greater in the low-level school, whereas the reverse is true of the larger sized groups and (b) that in the high-level school there are larger groups of tag players than in the low-level school (the largest group observed having 16 participants).

TABLE 22

PERCENT PLAY PARTICIPANTS OF "SIMPLE TAG"
IN TWO JERUSALEM SCHOOLS, WHO PLAYED IN GROUPS
SIZED 2, 3, ... , 16

Group Size	High-level	Low-level
2	21.49	26.38
3	17.83	23.86
4	15.09	20.17
5	14.29	10.67
6	7.54	9.31
7	8.80	3.39
8	5.49	0.78
9	1.03	0
10	3.43	0
11	0	0
12	0	1.75
13	0	0
14	3.20	2.33
15	0	0
16	1.83	0

In Figure 62 and Table 25 it may be seen that children tend to play more frequently in even-sized than in odd-sized groups. This is probably due to the fact that while there are only very few games which require an odd number of participants, a considerable number of competitive games require an even number of participants.

Our data analysis also reveals that: (a) the percent of play participants in two-member groups is the highest in all grades in the low-level schools, while (b) in the high-level schools the percent of play participants in four-member groups is almost as high in grades 5-6 and slightly higher in grades 7-8. This finding does not correspond to the first stage data (p. 78-79), in which groups sized four had the highest percent of play participants. This diversion is explicable by the fact that the limited duration of the first stage -- six weeks -- introduced a definite bias in the game sample, which the main stage, through its long duration, was aimed to avoid.

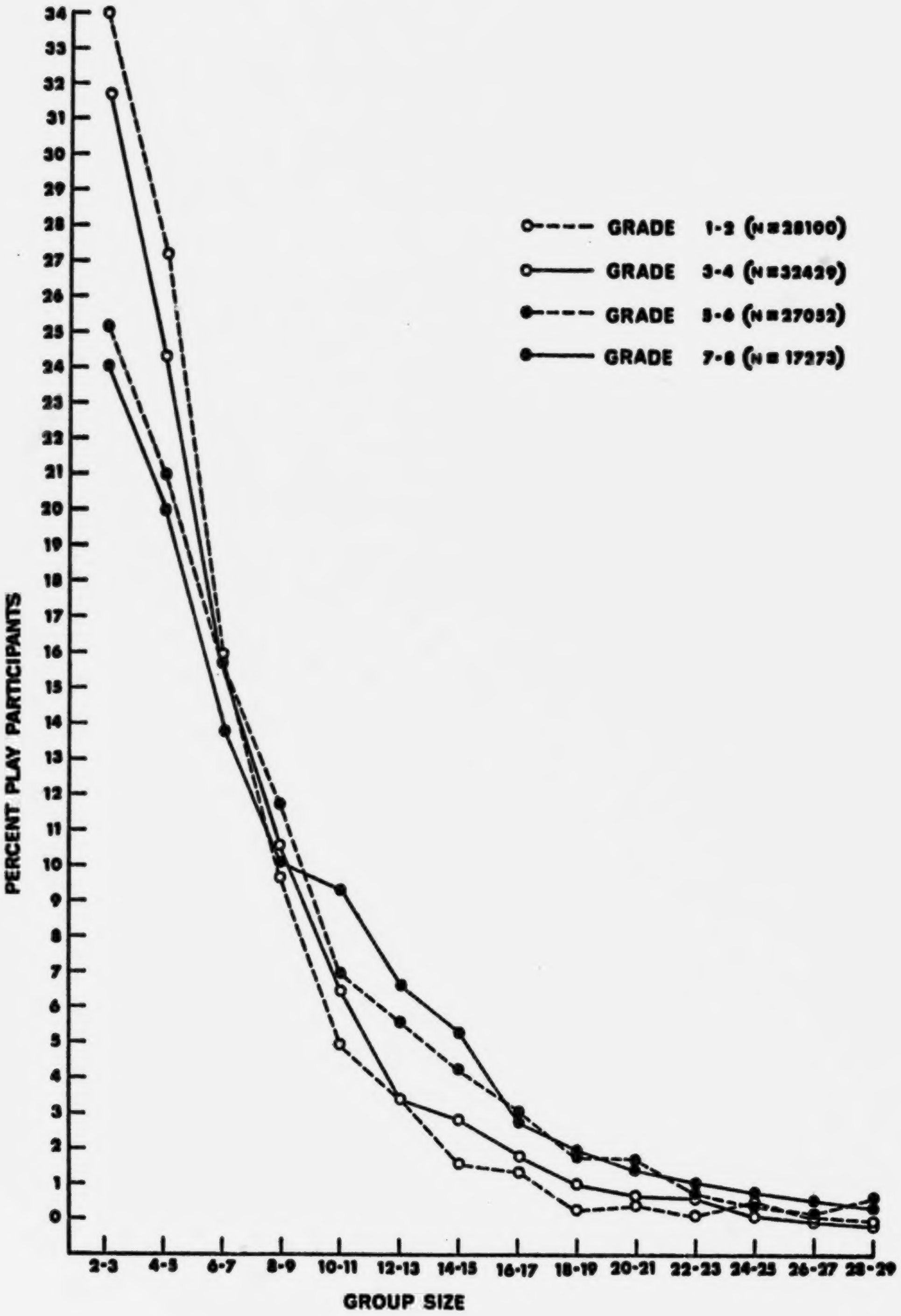

FIGURE 60

PERCENT OF PLAY PARTICIPANTS IN ALL SCHOOLS IN PAIRS OF SUCCESSIVE SCHOOL GRADES, WHO PLAYED IN GROUPS OF SPECIFIED SIZES OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH PAIR OF GRADES

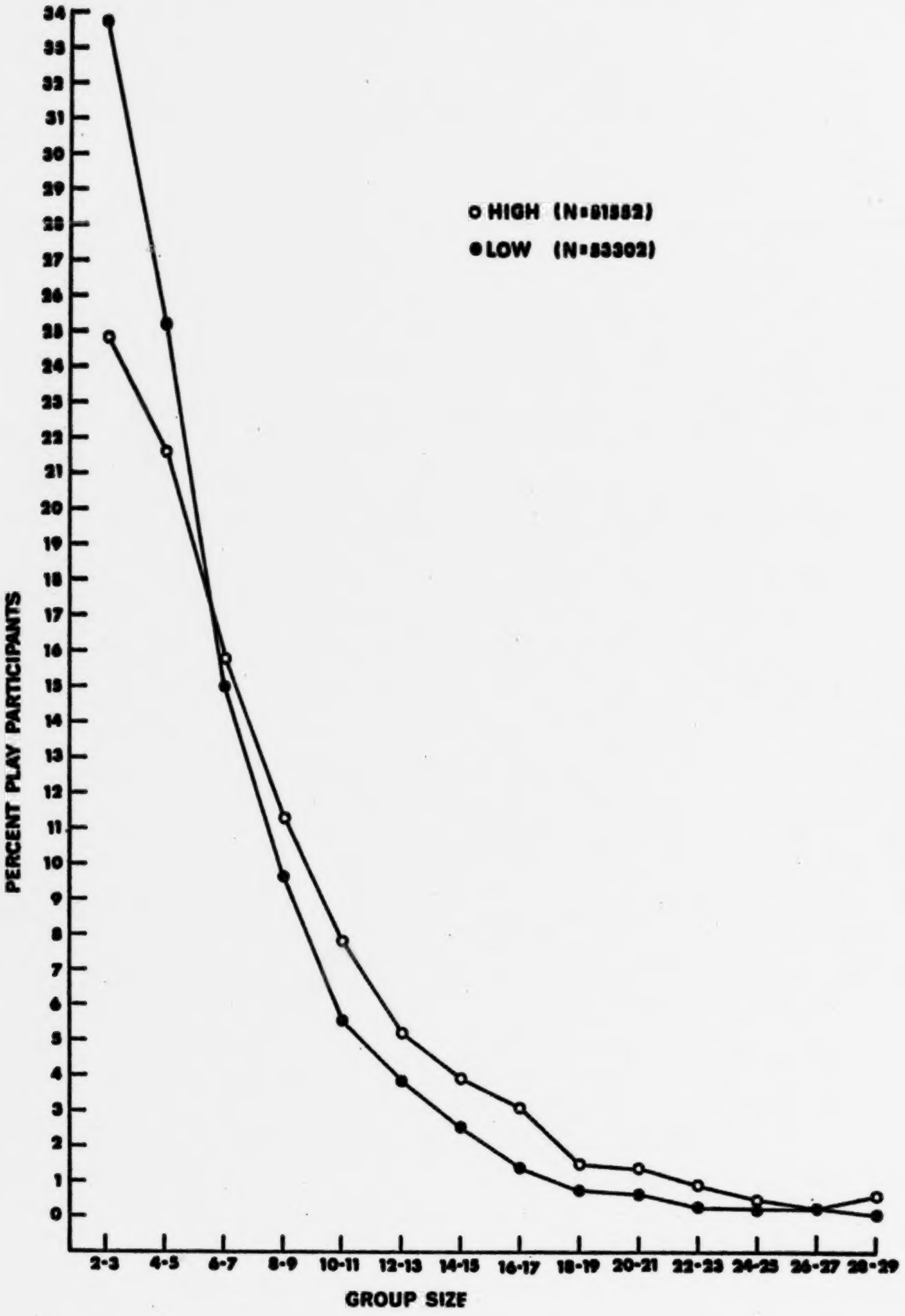

FIGURE 61
PERCENT OF PLAY PARTICIPANTS IN ALL HIGH-LEVEL AND LOW-LEVEL SCHOOLS WHO PLAYED IN GROUPS OF SPECIFIED SIZES, OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH PAIR OF GRADES

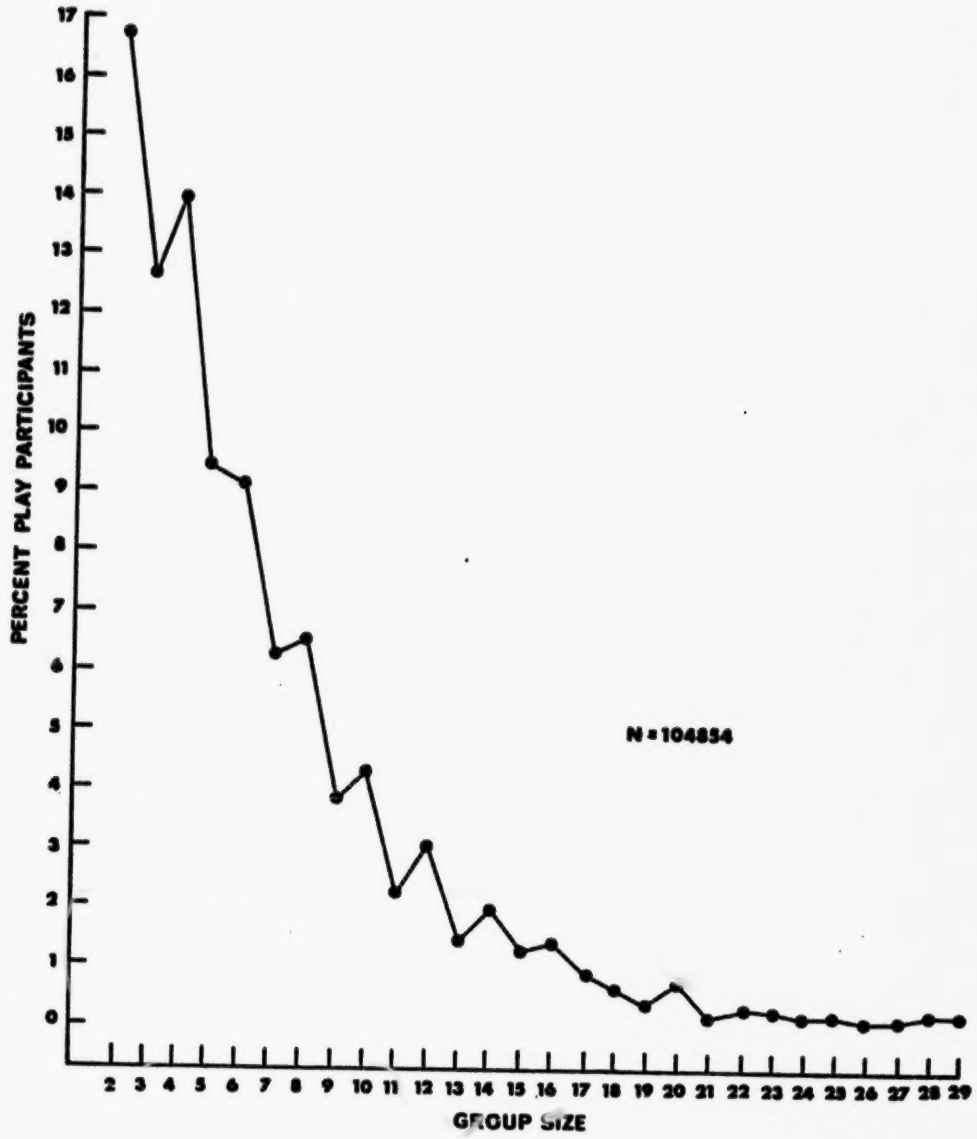

FIGURE 62
PERCENT OF PLAY PARTICIPANTS IN ALL SCHOOLS, WHO PLAYED IN GROUPS OF SPECIFIED SIZES OUT OF THE TOTAL NUMBER OF PLAYERS

TABLE 23

TOTAL NUMBER OF PLAY PARTICIPANTS IN PAIRS OF SUCCESSIVE SCHOOL GRADES WHO PLAYED IN GROUPS SIZED 2-3 ... 46-47 AND THE PERCENT OF PLAY PARTICIPANTS IN GROUPS OF THE SIZES SPECIFIED, OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH PAIR OF GRADES (N=104,856)

Group Size	Number of Participants in Grades				Number of Participants in Grades			
	1-2	3-4	5-6	7-8	1-2	3-4	5-6	7-8
2-3	9549	10262	6799	4145	34.0	31.6	25.1	24.0
4-5	7633	7850	5660	3436	27.2	24.2	20.9	19.9
6-7	4462	5090	4239	2374	15.9	15.7	15.7	13.7
8-9	2690	3390	3125	1747	9.6	10.5	11.6	10.1
10-11	1403	2080	1879	1608	5.0	6.4	6.9	9.3
12-13	962	1118	1496	1147	3.4	3.4	5.5	6.6
14-15	408	914	1125	912	1.5	2.8	4.2	5.3
16-17	366	597	865	514	1.3	1.8	3.2	3.0
18-19	77	323	472	303	0.3	1.0	1.7	1.8
20-21	117	198	450	265	0.4	0.6	1.7	1.5
22-23	70	209	191	158	0.2	0.6	0.7	0.9
24-25	131	67	97	120	0.5	0.2	0.4	0.7
26-27	60	40	91	100	0.2	0.1	0.3	0.6
28-29	36	15	199	92	0.1	0.0	0.7	0.5
30-31	32	85	103	201	0.1	0.3	0.4	1.2
32-33	41	26	27	35	0.1	0.1	0.1	0.2
34-35	11	44	116	2	0.0	0.1	0.4	0.0
36-37	2	45	39	22	0.0	0.1	0.1	0.1
38-39	8	30	0	0	0.0	0.1	0.0	0.0
40-41	5	7	53	55	0.0	0.0	0.2	0.3
42-43	0	14	12	17	0.0	0.0	0.0	0.1
44-45	27	17	0	0	0.1	0.1	0.0	0.0
46-47	8	6	13	20	0.0	0.0	0.0	0.1

TABLE 24

NUMBER OF PLAY PARTICIPANTS IN THE HIGH-LEVEL AND IN THE LOW-LEVEL SCHOOLS, WHO PLAYED IN GROUPS SIZED 2-3 ... 46-47 AND THE PERCENT OF PLAY PARTICIPANTS IN THESE SCHOOLS WHO PLAYED IN GROUPS OF THE SIZES SPECIFIED, OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH TYPE OF SCHOOL (N HIGH-LEVEL SCHOOLS = 51,552) (N LOW-LEVEL SCHOOLS = 53,302)

Group Size	School Level			
	High		Low	
	Number of Players	Percent of Players	Number of Players	Percent of Players
2-3	12771	24.8	17984	33.7
4-5	11159	21.6	13420	25.2
6-7	8160	15.8	8005	15.0
8-9	5840	11.3	5112	9.6
10-11	4031	7.8	2939	5.5
12-13	2693	5.2	2030	3.8
14-15	2017	3.9	1342	2.5
16-17	1577	3.1	765	1.4
18-19	790	1.5	385	0.7
20-21	727	1.4	303	0.6
22-23	450	0.9	178	0.3
24-25	245	0.5	170	0.3
26-27	133	0.3	158	0.3
28-29	285	0.6	57	0.1
30-31	301	0.6	120	0.2
32-33	33	0.1	96	0.2
34-35	104	0.2	69	0.1
36-37	72	0.1	36	0.1
38-39	38	0.1	0	0.0
40-41	80	0.2	40	0.1
42-43	0	0.0	43	0.1
44-45	44	0.1	0	0.0
46-47	0	0	47	0.1

TABLE 25

NUMBER OF PLAY PARTICIPANTS WHO PLAYED IN GROUPS OF 2, 3, ... 47 AND THEIR PERCENTAGE OUT OF THE TOTAL NUMBER OF PLAYERS (N=104,856)

Group Size	Play Participants		Group Size	Play Participants	
	Number	Percentage		Number	Percentage
2	17576	16.8	24	240	0.2
3	13179	12.6	25	175	0.2
4	14704	14.0	26	156	0.1
5	9875	9.4	27	135	0.1
6	9606	9.2	28	168	0.2
7	6559	6.3	29	174	0.2
8	6848	6.5	30	390	0.4
9	4104	3.9	31	31	0.0
10	4550	4.3	32	96	0.1
11	2420	2.3	33	33	0.0
12	3228	3.1	34	68	0.1
13	1495	1.4	35	105	0.1
14	2114	2.0	36	108	0.1
15	1245	1.2	37	0	0.0
16	1424	1.4	38	38	0.0
17	918	0.9	39	0	0.0
18	738	0.7	40	120	0.1
19	437	0.4	41	0	0.0
20	820	0.8	42	0	0.0
21	210	0.2	43	43	0.0
22	352	0.3	44	44	0.0
23	276	0.3	45	0	0.0
			46	0	0.0
			47	47	0.0

COMPETITIVE GAMES (WITH OUTCOMES)

Figure 63 (p. 208)
Table 26 (p.209)

Within structured games (as distinct from unstructured, spontaneous games, see pp. 36, 58, and 106), we have distinguished those which involve competition of some kind and have therefore at least partial outcomes, from those which are non-competitive and do not involve any outcomes. The non-competitive structured games (unlike the non-competitive unstructured games), are "institutionalized" in the sense that they are known by name and involve more or less regularized procedures (e.g., "fortune telling" according to a prescribed manner, as against "playing doctor" -- a game which may be conducted in many and varied ways).

Competitive structured games include all games which have outcomes, whether final ("showdown" games, see p. 193) or partial. Such outcomes are of the following kinds: winning or losing points, materials or objects, attaining or forsaking advantageous positions or roles in the game, making more moves or demonstrating greater skill or prowess than other players. Examples of games with no outcomes are: some forms of hand clapping and coordination games, certain types of jump rope (in pairs), and some versions of "fortune telling", "character reading" and "affection testing" games.

Our analysis of the percentage of players who participated in games with outcomes in the two Jerusalem schools (Figure 63, Table 26), shows a 20 percent increase in such participation from the first to the eighth grade in the low-level school, but few changes with age in the high-level school (Compare this with the First Stage findings, on pp. 79-80). At the same time, the percent of participants in competitive games is greater in the first and second grade of the high-level school than in the corresponding grades in the low-level school. It can also be seen in Table 26, that in most cases fewer girls than boys participate in games which have outcomes. (We have already seen that it is more typical of boys' games to be of the "showdown" type, p. 193).

In a seminar paper, Ruth Feder has compared the extent of participation in competitive games in three schools: one high-level and one low-level town school and the regional kibbutz school. The games were sorted on a five point scale, from non-competitive to highly competitive. The results of analysis indicate, that the percent play participants in highly competitive games is significantly greater in the regional kibbutz school than even in the high-level town school, and that it is lowest in the low-level town school.

TABLE 26

NUMBER AND PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL WHO PLAYED COMPETITIVE GAMES (WITH OUTCOMES) OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE

			GRADE								
			1	2	3	4	5	6	7	8	TOTAL
HIGH	N	BOYS	633	614	686	708	352	440	518	421	4372
		GIRLS	515	737	557	497	307	326	160	82	3181
		BOTH	1148	1351	1243	1205	659	766	678	503	7553
	%	BOYS	81.47	76.37	82.75	83.39	76.69	88.18	85.90	85.92	82.34
		GIRLS	72.95	80.55	75.89	76.70	69.93	78.93	73.06	60.74	75.58
		BOTH	77.41	78.59	79.53	80.49	73.39	83.99	82.48	80.48	79.35
LOW	N	BOYS	183	421	444	654	861	476	495	347	3881
		GIRLS	314	274	431	695	608	325	194	48	2889
		BOTH	497	695	875	1349	1469	801	689	395	6770
	%	BOYS	56.83	73.60	86.72	90.71	90.73	95.58	94.47	96.93	87.10
		GIRLS	83.07	49.46	76.55	71.50	75.53	74.54	80.17	87.27	72.13
		BOTH	71.00	61.72	81.40	79.68	83.75	85.76	89.95	95.64	80.01

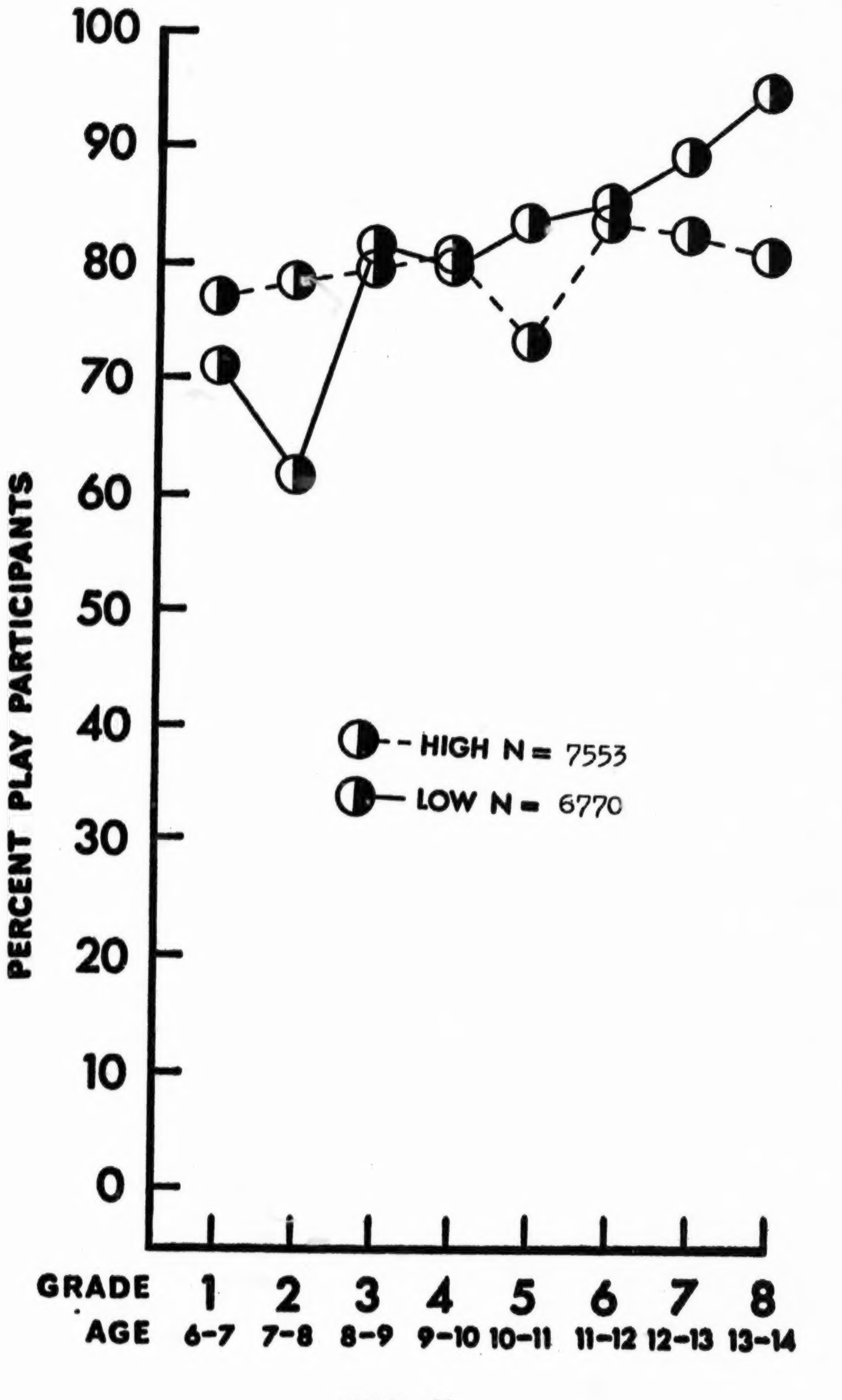

FIGURE 63
PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL WHO PLAYED COMPETITIVE GAMES (WITH OUTCOMES) OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE

PLAY MATERIALS AND OBJECTS

Figure 64 (p. 212)
Table 27 (pp. 213-214)

There is an increase with age in the percentage of children who make use of materials and objects in their games, both in the high-level and in the low-level school (Figure 64, Table 27). However, up to the fifth grade, more players in the high-level Jerusalem school than in the low-level Jerusalem school use materials in their play, whereas the reverse is true of the upper school grades. Moreover, the curve of increase in percent participation in games which require any materials is far steeper in the low-level school (from 16.7 in the first grade to 89.8 in the eighth grade of the low-level school, as against a corresponding increase from 33.5 to 63.5 percent in the high-level school).

All games requiring materials were sorted into four major categories and combinations thereof. The major categories were:
(a) Materials which are available or can be found in the schoolyard or buildings, such as trees, tables, stones or sticks.
(b) Materials that are bought, but not specifically for the purpose of play, and belong to specific children: e.g., a hat, chewing gum wrappers, apricot pits.
(c) Toys, e.g., balls, tops, playing cards.
(d) Play equipment, such as basketball nets, or climbing equipment.

Table 27 shows the percentage of players by age who played in games falling into the first three and major categories. The play equipment was used by relatively few children and was mainly confined to basketball equipment. Table 26 also shows the number of different games that fall into each of the three major categories. It may be seen that there exists no one-to-one correspondence between these different indices and they must, therefore, be examined separately. (It should be noted in this connection, as has been pointed out on p. 18, that previous research on games has been primarily based on the second index [number of games], which may have led to misleading conclusions.) In addition to these two indices, we have made a rough count of the number of different objects used in all games that fall into each category.

A comparison of the high-level and low-level schools in terms of percent of play participation in all games requiring materials, show little difference between them; the number of different games which require materials, and the number of different materials utilized in such games, are also very similar in the two schools. However, a comparison within categories, shows some interesting differences:

(a) The number of games in which "found" materials are utilized is slightly lower in the low-level than in the high-level school, while the reverse is true for the percentage of participants, and even more so for the variety of the materials utilized in the games. At the same time, the percent of children utilizing "bought" objects in their games is more than double in the high-level as compared with the low-level school, and both the number of games that fall into this category and the number of different "bought" materials in use is also greater in the high-level school. Yet it should be noted, that while one might expect (particularly when considering the ratio of "found" to "bought" in the two schools), that there would be fewer toys, fewer games requiring toys and fewer participants in such games in the low-level school, the reverse turns out to be the case. That is, the percent of players in games which require toys in the low-level school is more than double that in the high-level school, the number of games is greater by about one quarter, while the number of different toys is about the same, and there is no real difference in the kinds of toys used.

A detailed study of whether and if so, to what extent, "found" materials in the low-level school are substituted for "bought" materials in the high-level school, still remains to be done.

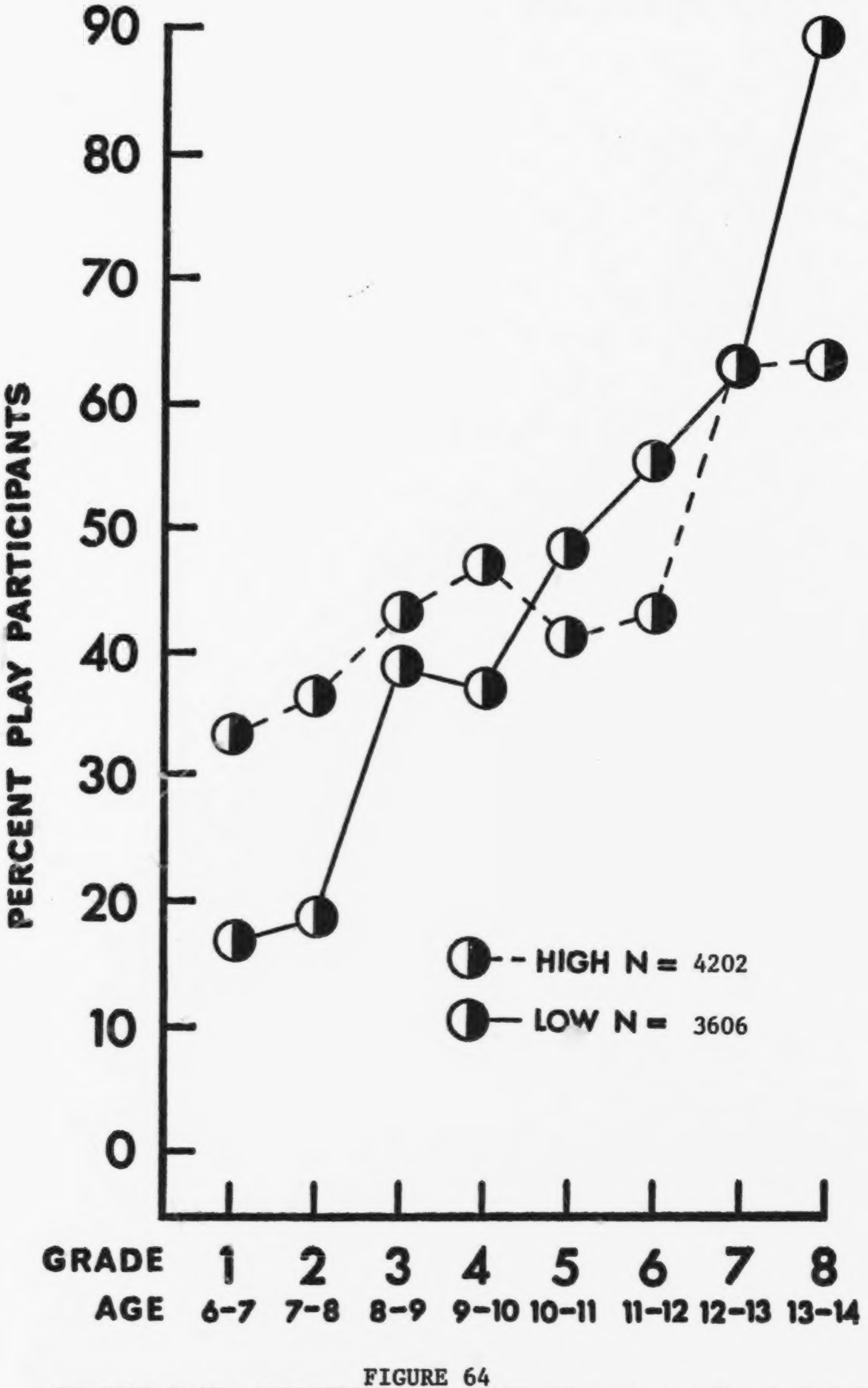

FIGURE 64
PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL WHO PLAYED GAMES REQUIRING OBJECTS OR MATERIALS OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE

TABLE 27

NUMBER AND PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL WHO PLAYED GAMES REQUIRING SPECIFIED TYPES OF OBJECTS OR MATERIALS OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE, AND NUMBER OF GAMES FALLING IN EACH CATEGORY OF OBJECTS AND MATERIALS

HIGH-LEVEL SCHOOL

		PLAYERS	GRADE 1	2	3	4	5	6	7	8	TOTAL	N OF GAMES
FOUND	N	BOYS	65	56	94	44	31	11	17	2	320	23
		GIRLS	17	48	38	75	33	33	18	0	262	
		BOTH	82	104	132	119	64	44	35	2	582	
	%	BOYS	8.37	6.97	11.34	5.10	6.75	2.20	2.82	0.41	6.03	
		GIRLS	2.41	5.25	5.18	11.57	7.52	7.99	8.22	0.00	[illegible]	
		BOTH	5.53	6.05	8.45	7.95	7.13	4.82	4.26	0.32	6.11	
BOUGHT	N	BOYS	78	101	49	133	89	51	16	25	542	18
		GIRLS	309	365	322	288	119	92	23	14	1532	
		BOTH	387	466	371	421	208	143	39	39	2074	
	%	BOYS	10.04	12.56	5.91	15.67	19.39	10.22	2.65	5.10	10.21	
		GIRLS	43.77	39.89	43.87	44.44	27.11	22.28	10.50	10.37	35.40	
		BOTH	26.10	27.11	23.74	28.12	23.16	15.68	4.74	6.24	21.79	
TOYS	N	BOYS	23	56	169	81	40	89	178	106	742	28
		GIRLS	0	0	0	5	0	10	24	11	50	
		BOTH	23	56	169	86	40	99	202	117	792	
	%	BOYS	2.96	6.97	20.39	9.54	8.71	17.84	29.52	21.63	15.97	
		GIRLS	0.00	0.00	0.00	1.77	0.00	2.42	10.96	8.15	[illegible]	
		BOTH	1.55	3.26	10.81	5.74	4.45	10.86	24.57	18.72	8.32	
ALL MATERIALS AND OBJECTS	N	BOYS	171	216	318	346	219	261	435	366	2332	
		GIRLS	326	413	361	370	152	135	82	31	1870	
		BOTH	497	629	679	716	371	396	517	397	4202	
	%	BOYS	22.01	26.87	38.36	40.75	47.71	52.30	72.14	74.69	43.92	
		GIRLS	46.18	45.14	49.18	57.10	34.62	32.69	37.44	22.96	44.43	
		BOTH	33.51	36.59	43.44	47.83	41.31	43.42	62.90	63.52	44.14	

TABLE 27, CONTINUATION

LOW-LEVEL SCHOOL

		PLAYERS	GRADE 1	2	3	4	5	6	7	8	TOTAL	N OF GAMES
FOUND	N	BOYS	15	50	62	36	42	13	8	2	228	21
		GIRLS	64	65	108	91	52	23	7	0	410	
		BOTH	79	115	170	127	94	36	15	2	638	
	%	BOYS	4.66	8.74	12.11	4.99	4.43	2.61	1.53	0.56	5.12	
		GIRLS	16.93	11.73	19.18	9.36	6.46	5.28	2.89	0.00	10.24	
		BOTH	11.29	10.21	15.81	7.50	5.36	3.85	1.96	0.48	7.54	
BOUGHT	N	BOYS	9	18	15	30	43	5	17	0	137	12
		GIRLS	4	44	120	131	128	95	38	0	560	
		BOTH	13	62	135	161	171	100	55	0	697	
	%	BOYS	2.80	3.15	2.93	4.16	4.53	1.00	3.24	0.00	3.07	
		GIRLS	1.06	7.94	21.31	13.48	15.90	21.79	15.70	0.00	13.98	
		BOTH	1.86	5.51	12.56	9.51	9.75	10.71	7.18	0.00	8.24	
TOYS	N	BOYS	15	22	94	184	309	253	231	267	1375	37
		GIRLS	2	4	2	24	58	25	9	30	154	
		BOTH	17	26	96	208	367	278	240	297	1529	
	%	BOYS	4.66	3.85	18.36	25.52	32.56	50.80	44.08	74.58	30.86	
		GIRLS	0.53	0.72	0.36	2.47	7.20	5.73	3.72	54.55	3.85	
		BOTH	2.43	2.31	8.93	12.29	20.92	29.76	31.33	71.91	18.07	
ALL MATERIALS AND OBJECTS	N	BOYS	45	95	181	334	538	368	391	338	2290	
		GIRLS	72	114	240	305	314	151	87	33	1316	
		BOTH	117	209	421	639	852	519	478	371	3606	
	%	BOYS	13.98	16.61	35.35	46.32	56.69	73.90	74.62	94.41	51.39	
		GIRLS	19.05	20.58	42.63	31.38	39.01	34.63	35.95	60.00	32.86	
		BOTH	16.71	18.56	39.16	37.74	48.57	55.57	62.40	89.83	42.62	

MATERIAL GAIN

Figure 65 (p. 216)
Table 28 (p. 217)

Figure 65 and the relevant section in Table 28 show that only about ten percent of players play games involving material gain and that there is little difference in this respect between the high-level and low-level schools. Terell *et. al* (1959), and others, have argued on the basis of experiments, that middle class children learn more quickly when given a non-material incentive than when given a material incentive, while the reverse is true of lower class children. One might infer from such findings that lower class children are more concerned about material gain and would consequently also more often engage in play which involves promise of such gain. Our data, on one low-level and one high-level school, does not support such an inference. Neither does it indicate a rise of interest in material gain with age. Altogether, our findings concerning material gain suggest that this factor is secondary in importance in the activity of playing.

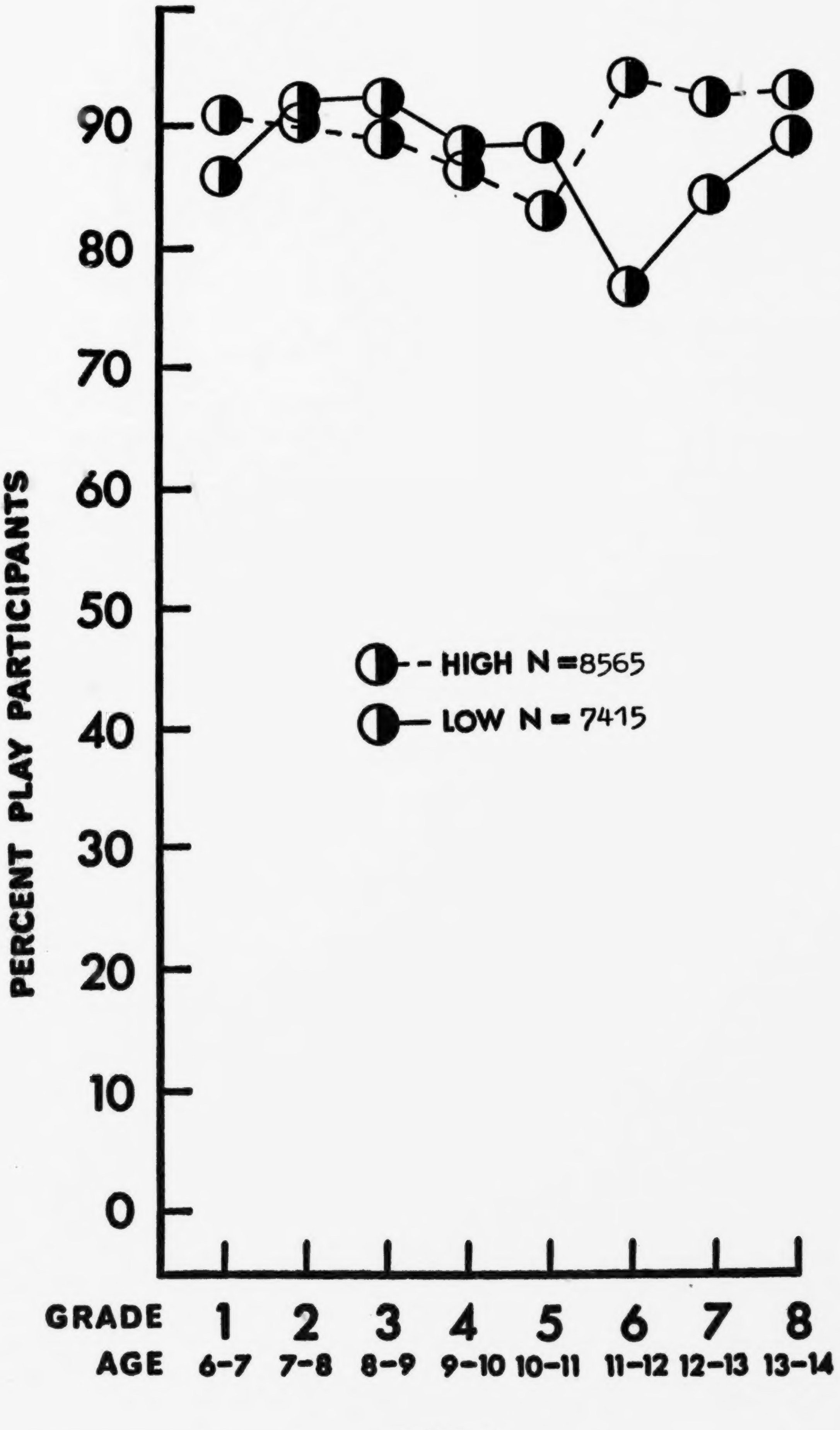

FIGURE 65
PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL, WHO PLAYED GAMES INVOLVING NO MATERIAL GAIN OUT OF THE TOTAL NUMBER OF PLAYERS IN EACH GRADE

TABLE 28

NUMBER AND PERCENT PLAY PARTICIPANTS BY GRADE IN A HIGH-LEVEL AND A LOW-LEVEL SCHOOL WHO PLAYED GAMES INVOLVING NO MATERIAL GAIN OUT OF THE TOTAL NUMBER OF PLAYERS OF STRUCTURED GAMES IN EACH GRADE

			GRADE								
			1	2	3	4	5	6	7	8	TOTAL
HIGH	N	BOYS	693	701	713	753	382	479	566	460	4747
		GIRLS	665	853	686	540	364	385	198	127	3818
		BOTH	1358	1554	1399	1293	746	864	764	587	8565
	%	BOYS	89.19	87.19	86.01	88.69	83.22	95.99	93.86	93.88	89.40
		GIRLS	94.19	93.22	93.46	83.33	82.92	93.22	90.41	94.07	90.71
		BOTH	91.57	90.40	89.51	86.37	83.07	94.74	92.94	93.92	89.98
LOW	N	BOYS	251	522	462	607	792	380	437	323	3774
		GIRLS	351	507	533	892	768	334	208	48	3641
		BOTH	602	1029	995	1499	1560	714	645	371	7415
	%	BOYS	77.95	91.26	90.23	84.19	83.46	76.31	83.40	90.22	84.69
		GIRLS	92.86	91.52	94.67	91.77	95.40	76.61	85.95	87.27	90.91
		BOTH	86.00	91.39	92.56	88.54	88.94	76.45	84.20	89.83	87.64

THE RULES OF A GAME*

Figure 66 (p. 220)

"Dutch Gummi", "Japanese Gummi", "Gummi Rectangle", "Old Gummi", "New Gummi", "New-New Gummi", or just "Gummi" (in Princeton, N.J., I heard it called "Japanese Elastic"), is a relatively new game which is still in the process of spreading in various parts of the world. Here in Israel, it was not known before 1960 (as established by a retrospective questionnaire), has since spread considerably, but is still not known everywhere. For the benefit of the enthusiastic player the motion components which constitute the elements of the game are presented in Appendix C, pp. 246-7.

The illustrated glossary of terms presented in the Appendix exemplifies the type of unified code developed for a number of games which were studied very intensively, over many hours of separate interviews of children of the various grades in which the games were played. The following description indicates some quantitative and qualitative differences in the rules of Gummi as verbalized and as exhibited in actual playing by children in one Jerusalem school, observed in two consecutive years during the same six-week period in grades 1 through 7.

As can be seen in Appendix C, Gummi is basically a type of jumping game, and when done gracefully, it often looks like a dance. (It is a periodic game and, interestingly enough, our observations indicate that it is yearly turning into a more predominantly girls' game.) Gummi is played with a closed elastic band, usually stretched around the legs, hips or waists of two players who stand at a distance of about 2 meters from one another. (There exist other variants of the game, such as, "Foot Gummi", "Gummi Triangle", etc.) In its usual form, a third player jumps in the middle, until he misses and exchanges places with one of the holders of the Gummi whose turn has come.

The game starts with the elastic band stretched around the ankles of the two holders. A series of jumps such as presented in Appendix C is performed consecutively. This is "First Kon". In the "Second Kon", the same moves are carried out, but the elastic is lifted higher up on the holder's legs. The number of "Kon-s" and the position of the band differs for different age groups. When a round of "Kon-s" is completed, a new and different round is started. Thus, the same moves and "Kon-s" will now be performed "without moving" (no unnessary movements are permitted), "on one foot", "without moving and on one foot", "blind", (or "without looking"), "without talking", "zig-zag" (jumping with legs corssed), "attached" (jumping with legs closely held together), "without laughing", etc.

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* This analysis was conducted jointly first, with Iris Levin and then with Michal Neuman, both of whom were also in charge of all the field work involved.

The essential rules of the game are those which prescribe the action sequences. Any wrong move results in an exchange of roles between the jumper and one of the holders. Figure 66 gives the total number of "Kon-s" and of rounds recognized as parts of the complete game of Gummi by a number of children from each of the grades 1-7 who were interviewed separately. (A round often includes more than one "Kon", but not necessarily so.) It also gives the number of different variations of the game played in the different grades. It may be seen that all three curves have their peaks in the third grade.

By the children's own testimony, the game is practically never played to its end (this would have taken, literally, days). Yet the younger children (up to grade 6, and to the extreme in grade 3), consistently insist on specifying with complete detail all moves they know of, since these are "part of the game" as ideally played. Thus, they also insist that the elastic band is eventually lifted up as far as the head! How does this rigid attitude to rules face up to reality? Firstly, there are variations of the ideal game, which deviate in the direction of reality, (and the more there are variations the greater the number of ideal rules). Secondly, there exist a series of meta-rules, which make possible a legitimate circumvention of the ideal.

The decision regarding the particular variation that will be played differs according to grade: In the 1st grade, each player is free to choose his own variation, but this choice commits him for the rest of the game. Sometimes, the decision is "one rule for all". In the 2nd grade, the custom is the same as that common in the 1st, on condition that someone has announced "with no change in rules" before "with change in rules" has been announced. In the 3rd grade, the participants decide from which set of variations all players can choose (each for himself). Once decided, a player cannot change over to another variation. From the 4th grade onwards the decision on a particular variation is made by common agreement before the game is started and this decision commits all participants throughout the game.

The sets of meta-rules adopted in various grades do not entirely coincide. The number of meta-rules accepted in successive grades, beginning with the 1st grade,—is: 7, 14, 9, 6, 6, 7, 3. These rules function to make the game easier, or harder. They include such rules as, "with reminding" (what the jumper's next move should be), "with support" (in case of loss of balance), "with touching" (-the elastic in the "blind kon"), "free entry" (strating by simply stepping on the elastic rather than jumping on it), or "without having to look at the funny faces" (in the "without laughing" round). These rules may also be formulated as negations of such privileges. The younger children tend to make liberal use of all their privileges and, in fact, often play "with all good comforts" (or "without all bad comforts"!), meaning, that all recognized privileges are permissible throughout the game. Yet, unlike players in the upper grades, they tend at the same time to specify each particular meta-rule before making use of it and must, moreover, add the saying "with an iron thread" for good measure, or else the rule will not be valid. (Not one of the many children interviewed could explain why this particular magical expression was used, nor what it meant.)

We have already analyzed in this Report (p. 106) some of the implication of children's changing attitudes to rules as described by Piaget (1932). Here we see how the dialectic strain between a rigid attitude towards ideal rules and their liberal interpretation in practice is resolved through the use of meta-rules. The child can adhere to his high-falluting rules while at the same time playing "with all good comforts".

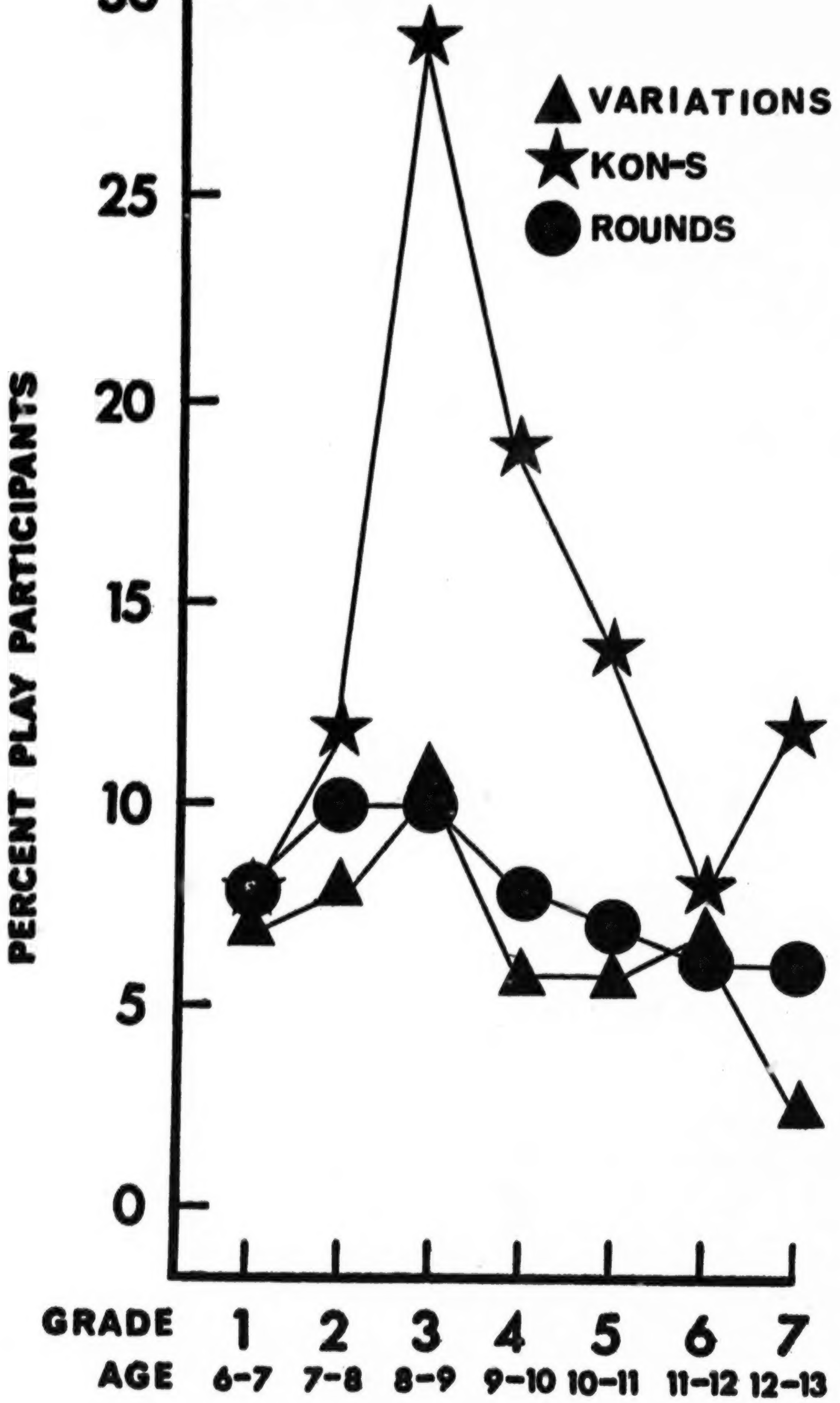

FIGURE 66

NUMBER OF VARIATIONS OF GUMMI (JAPANESE ELASTIC) AND OF KON-S AND ROUNDS IN THE GAME AS PLAYED IN SUCCESSIVE SCHOOL GRADES.

PRACTICAL APPLICATIONS OF THE FINDINGS

Planned Games in the Service of Education

A crucial test of whether our analyses of freely formed play groups and of the games played, have significantly furthered our understanding of the processes involved would be in the *invention and subsequent planting, of games "to measure"* amongst non-captive, appropriate "clients". We should also, if successful, be able to predict the rate of diffusion of these games and their life span. Similarly, we should be able to *introduce planned changes into existing games*, while retaining their direct appeal for the child; furthermore, it should be possible for us to introduce changes into "supergames", "periodic games", or "sporadic games", that will transform one type of game into another, in accord with our intentions.

The design and re-design of games in this manner would mean that playful learning need no longer be confined primarily to formal school hours. We are not worried, at least at this time, about the possible damage that may be caused by such interference in the "natural" play scene of children, for two reasons: (a) our planned games are aimed to simulate existing games as closely as possible; (b) our impression thus far is that the *specific* games present at any time in the play scene, are there largely due to various arbitrary and inessential factors (see p.113 for an elaboration of this point).

Play has long been recognized as a means for developing in children an intrinsic motivation to study and a positive attitude to the material learnt. Games have been introduced into textbooks and teachers' instruction manuals. There exists books on "educational games", and "educational toys" are constantly thrown into the market. But there has been no systematic knowledge available on the question of why one game becomes highly popular with children while another is rejected. In one of the schools participating in our research, an imaginative headmaster arranged for a huge colorful 'map of the world' to be drawn on the asphalt surface of the schoolyard. Quite a few games were invented by teachers around this map and were introduced during gym lessons (e.g., skipping from one 'country' to another). Nevertheless, we observed hardly any games played around the theme of this map during recess. An analysis of such unsuccessful attempts at introducing games, as also of the parallel "natural" phenomenon of "sporadic" games, suggests an additional avenue through which the successful game can be better understood. Undoubtedly, our analyses of the nature and functions of play and games thus far offer only very partial answers to a limited number of the questions that any inventor of games has to face; many and varied additional analyses are required in order for a more comprehensive picture to emerge. Nonetheless, even our findings to date contain some systematic information of a kind entirely lacking up to now, which is of direct relevance to the rational creation of games.

Thus, for example, we can offer specific recommendations concerning optimal group size in relation to the age, sex and level of school achievement of the potential players (p.198) and, with regard to the same variables, we can suggest the more suitable styles of playing in terms of various characteristics, such as group structure (p.193), sequential and simultaneous playing (p.112), or the desirable degree of flexibility in action during play (p.151). We can also make some suggestions about the game styles preferred by boys and by girls (p.151-152) and about the type of games that can be played more easily than others in mixed age groups (p.188).

Application in the Classroom and The Planning of Leisure Time Activities

The structures, modes of organization and styles of interaction of children when they are free to do as they please, cannot be sensibly ignored by teachers and educators in their methods of instruction: they are more likely to be successful in their task, if these methods are adapted to the child's spontaneous behavior -- selectively and in accordance with defined aims (which might involve a partial changing of that spontaneity), but not in ignorance of it.

The planning of the child's free supervised time will better suit his real, rather than presumed, needs and capacities, once systematic knowledge is available on his play and game preferences. It has been found (Sutton-Smith, 1965), that children's declared play preferences (in answer to questionnaires) do not always correspond to their actual play behavior. Analyses such as ours will enable the instructor to select the kind of game most to the children's liking and also to invent games more in the spirit of their "real" games. In organizing games, he will be in a better position to take account of such factors as the size of groups optimal for interaction at various age levels, the optimal time extension for one game and the capacity and willingness of children to interact with others of the opposite sex, or with others differing in age from themselves.

The Design of Playspace

Since schoolyards in Israel are not standardized, the 14 schools of our sample represent 14 different yards, varying in size, shape, play surface and equipment. Any of these factors may affect children's play habits. A great deal has been writtent about our "space starved age" and about the necessity for constructing suitable equipment for playgrounds. But little is known about optimal conditions for play and about the minimal conditions under which children can still find solutions to environmental constraints.

In the selection of our sample, we were careful to choose schools in which all children could move freely all around the schoolyard during recess. We are thus able to calculate the space available to each child in every school. Since we have also recorded the type of surface (paved, lawn, sand, etc.) on which each playgroup was observed, we can now determine, on the basis of our data, to what extent the availability of a particular surface contributes to the variety of play activities in which children engage. We can also determine, by the extent of crowding on particular surfaces, which of them is preferred. Thus we have found, for example, that girls require less space for most of their games than boys require for most of theirs and that girls tend to play on hard surfaces more often than boys (p.176).

Our recordings also enable us to determine the extent of playground traffic: because we were interested in our research in the extent of age interaction, we ensured that the playground in our school sample was not subdivided in any way. In some Israeli schools such a division exists, mainly in order to prevent interference of older children in the play of younger children. Amongst the "causes for termination of play" which were recorded about each playgroup, "outside interference" ("external quarrel") of this kind was specified. We have found that such interference very rarely caused play termination. Nevertheless, it may occur with less drastic consequences. Therefore its effect must be weighed against possible positive effects of an open-to-all playground, such as contacts between children of different ages: The school system provides children with hardly any opportunity to interact with others outside their own age group. If in spite of this predominant educational bias, they do nevertheless play in heterogeneous groups to some extent (p. 185), this suggests that it may be a mistake to deprive them of the opportunity to do so. In fact, the existent age interaction implies that more opportunities should be offered within the educational system for such interaction to occur. However, a balanced decision must take account of the fact that there is more quarreling in mixed play groups (p. 153).

One of the "causes for play termination" specified on our record sheets was the school bell, i.e., the ending of the recess period. Since we have also recorded the length of each game played, we can now determine to what extent the length of the recess suits the "natural rhythm" of the child's play. The fact that most games are terminated by the bell (p.166), should not necessarily be interpreted as indicating that, without that restraint, the games would have lasted much longer, on the average. Our observations of children's games after school hours, where this restraint is not in effect indicate that about two thirds of the games do not last more than ten minutes.

Equipment and Materials Available and Games Played

Equipment in the schoolyard is often very limited and so is often the use made of it. Some equipment enhances individual rather than cooperative play (e.g., swings); it requires children to stand in line for their turn; often, it is claimed, the equipment does not leave room for the child's imagination (Aaron and Winawer, 1965; Playground Corporation of America, 1967). While these claims are probably true, little thought has been given to the question of whether, for example, the role of the onlooker, while forced to await his turn, is altogether undesirable. As a matter of fact, children will stand looking at others who play, out of their own choice and not only while waiting for their turn (p. 97). Onlooking may fulfill obvious functions such as learning to observer others' behavior which may lead to a reduction of 'egocentricity' (in Piaget's sense of the term), to an understanding of the various roles involved in playing a particular game, and to an improvement of one's own playing, through observation of a skilled player.

Children bring play materials such as marbles, balls and jump ropes to school. It may be presumed that children of the lower socio-economic strata have fewer such commercial play materials in their possession. To what extent does this affect the varieties of their play behavior? Does it in fact limit their possibilities of play, do they create substitute materials or do they on the whole, simply play other games, not to be found where ready-made toys define much of the child's play behavior? In the two Jerusalem schools compared thus far, one high-level and one low-level, we have found no differences in this respect. However, we found that children in the high-level school use more "bought" materials (which are not specifically toys), whereas low-level children make more use of objects that can be found in the school grounds or buildings (e.g., stones and sticks).

The patterns of play behavior as related to the availability of play equipment is of obvious relevance to a clearer definition of what some children may lack, but also of what others may have too much of, or may have and not use at all. This is particularly pertinent in the case of "educational" toys and play equipment.

Maturity and Rate of Change in Interests

Various studies cited by Kuhlen (1952) indicate that there is a direct relationship between maturity and change of interests. The development of interest patterns was found to be so regular and consistent that it was possible to use expressed interests as a means of evaluating personality development. Kuhlen (1952) describes two tests, one devised by Furfey (1931) and one by Pressy and Pressy (1933) which measure, respectively, "developmental age" and "emotional age".

Since our research is based on actual observations and since it deals with a large population sample, which has been observed over an extensive period of time, it can provide a reasonably broad basis for establishing norms of play behavior of children at various age levels and of either sex. Such norms could be treated as reference points in defining deviations in children's behavior in this most central and spontaneous of their areas of activity.

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APPENDIX A, A/1

FIRST STAGE RECORD SHEETS

FIRST STAGE RECORD SHEET (GENERAL INFORMATION)

APPENDIX A

The Hebrew University in Jerusalem
Department of Psychology

GENERAL DETAILS ABOUT ONE OBSERVATION

Date ______________ Time of day from ______ to ______

Name of town or settlement ______________ District __________

Street ______________

Place of observation:

a. Out of school (in a whole street, concentrated at one end of a street, next to an organized club, public park, open plot, etc.)

____

____

Description of play surface (sand, clay, mud, cement, asphalt, etc.) ______________________________

____

b. In school (in the playground, the sports field, the corridors, the classroom, etc.) ______________

____

____

Description of the play surface ______________

____

Weather conditions ______________________________

Other remarks which seem relevant to the general details

____

____

____

____

FIRST STAGE RECORD SHEET OF ONE PLAY GROUP
APPENDIX A/1

The Hebrew University of Jerusalem
Department of Psychology

GAME REPORT

Name of game ____________________ Name of observer __________
Location ____________________ Date ____________________
Nature of play surface: (sand, clay, mud, cement, asphalt, etc.)
____

*Duration of game: a. less than 5 minutes b. more than 5 minutes (If there was a small number of children in the area and you were able to note the exact duration, please give the number of minutes ____________________)

	BOYS			GIRLS		
	Number	Grade	Age	Number	Grade	Age
Participants at the start of the game						
Joined the group during the game						
Left the group during the game						

A. If some of the children had already participated in other games during the same observation, record in which games they participated and how many children participated in each, by sex:

		Boys	Girls
Name of the game ______________	number of		
Name of the game ______________	number of		
Name of the game ______________	number of		

*B. The socio-economic level of the children's families:
low middle high mixed (If mixed, give details of the composition of the group with regard to socio-economic level_____)

*C. The children are: mostly religious mostly non-religious mixed

*D. The children are: mostly Israeli-born mostly immigrants neither

E. Ethnic group of the majority of the children ____________________

F. Register any changes in the other details resulting from children joining or leaving the group ____________________

G. Other remarks ____________________
____
____

* Draw a circle around the appropriate item

APPENDIX A/2

MAIN STAGE RECORD SHEETS

80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65						
X 2	בנות												5 מזג אויר 6 מורה 7 הפסיקו 9 אחר		5 דשא 6 בוץ 9 אחר

	מספר המשתתפים מכיתות							
	א	ב	ג	ד	ה	ו	ז	ח
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33
בנים								
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65
X 2 בנות								

שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס' הקבוצה	
21 - 25	20	19	18	17	16	11 - 13	1 - 10
	1 משחקים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP

	מספר המשתתפים מכיתות							
	א	ב	ג	ד	ה	ו	ז	ח
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33
בנים								
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65
X 2 בנות								

שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס' הקבוצה	
21 - 25	20	19	18	17	16	11 - 13	1 - 10
	1 משחקים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP

	מספר המשתתפים מכיתות							
	א	ב	ג	ד	ה	ו	ז	ח
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33
בנים								
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65
X 2 בנות								

שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס' הקבוצה	
21 - 25	20	19	18	17	16	11 - 13	1 - 10
	1 משחקים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP

האוניברסיטה העברית ירושלים המחלקה לפסיכולוגיה מחקר משחקים

שם הצופה

☒	חוסר אינפורמציה	מזג האויר			כיתות חסרות		סמל ביה"ס	תאריך			מס' הצופה
		מידת החום	משקעים	רוח				שנה	חדש	יום	
80	28	27	26	25	24	16 - 23	11 - 15	9 - 10	7 - 8	5 - 6	1 - 4
☒ x 1	צופה אחר 1 צופה חסר 2 סיבה אחרת 9	קר 1 ממוזג 2 חם 3 חמסין 4	אין משקעים 0 מטפטף 1 גשם 2 שלג 3	אין רוח 0 יש רוח 1	כלן סמן X	א ב ג ד ה ו ז ח					

☒	☒	מספר המשתתפים מכיתות							
		א	ב	ג	ד	ה	ו	ז	ח
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33
	בנים								
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65
x 2	בנות								

שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס' הקבוצה	☒
21 - 25	20	19	18	17	16	11 - 15	1 - 10
	מְשַׂחֲקִים 1 רַבִּים 2 שניהם 3	ארוך 1 קצר 2	צלצול 1 ריב פנימי 2 ריב חיצוני 3 משחק חדש 4 מזג אויר 5 מורה 6 הפסיקו 7 אחר 9	מזרח 1 מערב 2 שניהם 3	כבוש 1 חול/אדמה 2 כורכר 3 במבנה 4 דשא 5 בוץ 6 אחר 9		DUP ☒

☒	☒	מספר המשתתפים מכיתות							
		א	ב	ג	ד	ה	ו	ז	ח
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33
	בנים								
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65
x 2	בנות								

שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס' הקבוצה	☒
21 - 25	20	19	18	17	16	11 - 15	1 - 10
	מְשַׂחֲקִים 1 רַבִּים 2 שניהם 3	ארוך 1 קצר 2	צלצול 1 ריב פנימי 2 ריב חיצוני 3 משחק חדש 4 מזג אויר 5 מורה 6 הפסיקו 7	מזרח 1 מערב 2 שניהם 3	כבוש 1 חול/אדמה 2 כורכר 3 במבנה 4 דשא 5 בוץ 6 אחר 9		DUP ☒

בנים																	
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65	62-63	60-61	58-59	56-57	54-55	52-53	50-51	48-49	
בנות																	
X 3																	

	מספר המשתתפים מכתות								שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס. הקבוצה	
	א	ב	ג	ד	ה	ו	ז	ח								
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21-25	20	19	18	17	16	11-13	1-10
בנים										1 מְשַׂחֲקִים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
בנות																
X 2																

	מסתכלים								מסתכלים										
	א	ב	ג	ד	ה	ו	ז	ח	א	ב	ג	ד	ה	ו	ז	ח			
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	30-31	28-29	26-27	24-25	22-23	20-21	18-19	16-17		11-13	1-10
בנים																		DUP	DUP
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65	62-63	60-61	58-59	56-57	54-55	52-53	50-51	48-49			
בנות																			
X 3																			

	מספר המשתתפים מכתות								שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס. הקבוצה	
	א	ב	ג	ד	ה	ו	ז	ח								
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21-25	20	19	18	17	16	11-13	1-10
בנים										1 מְשַׂחֲקִים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP 333
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
בנות																
X 2																

	מסתכלים								מסתכלים										
	א	ב	ג	ד	ה	ו	ז	ח	א	ב	ג	ד	ה	ו	ז	ח			
	46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	30-31	28-29	26-27	24-25	22-23	20-21	18-19	16-17		11-13	1-10
בנים																		DUP	DUP
80	78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65	62-63	60-61	58-59	56-57	54-55	52-53	50-51	48-49			
בנות																			
X 3																			

האוניברסיטה העברית בירושלים - המחלקה לפסיכולוגיה

מחקר משחקים. דו"ח משחקים כללי

שם הצופה

	חוסר אינפורמציה	מזג האויר: מידת החום	מזג האויר: משקעים	מזג האויר: רוח		כחות חסרות	סמל ביה"ס	תאריך: שנה	תאריך: חדש	תאריך: יום	מס. הצופה
80	28	27	26	25	24	16 – 23	11 – 15	9-10	7-8	5-6	1-4
X 1	1 צופה אחר 2 צופה חסר 9 סיבה אחרת	1 קר 2 ממוזג 3 חם 4 חמסין	0 אין משקעים 1 מטפטף 2 גשם 3 שלג	0 אין רוח 1 יש רוח	כולן בזמן x	א ב ג ד ה ו ז ח					

		מספר המשתתפים מכתות: א	ב	ג	ד	ה	ו	ז	ח	שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס. הקבוצה	
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 – 25	20	19	18	17	16	11 – 13	1-10
	בנים										1 משחקים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	בנות																

		מסתכלים: א	ב	ג	ד	ה	ו	ז	ח	מסתכלים: א	ב	ג	ד	ה	ו	ז	ח		
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	30-31	28-29	26-27	24-25	22-23	20-21	18-19	16-17	11-13	1-10
	בנים																	DUP	DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65	62-63	60-61	58-59	56-57	54-55	52-53	50-51	48-49		
X 3	בנות																		

		מספר המשתתפים מכתות: א	ב	ג	ד	ה	ו	ז	ח	שם המשחק	אופן המשחק	משך המשחק	סיום המשחק	עדה	פני השטח	מס. הקבוצה	
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 – 25	20	19	18	17	16	11 – 13	1-10
	בנים										1 משחקים 2 רבים 3 שניהם	1 ארוך 2 קצר	1 צלצול 2 ריב פנימי 3 ריב חיצוני 4 משחק חדש 5 מזג אויר 6 מורה 7 הפסיקו 9 אחר	1 מזרח 2 מערב 3 שניהם	1 כבוש 2 חול/אדמה 3 כורכר 4 במבנה 5 דשא 6 בוץ 9 אחר		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	בנות																

מסתכלים מסתכלים

الجامعة العبرية – اورشليم   قسم علم النفس   بحث العاب

اسم المشاهد ____________

	نقص في التفاصيل	حالة الطقس				صفوف غير موجودة	رمز المدرسة	التاريخ			رقم المشاهد
		درجة الحرارة	أمطار	رياح				سنة	شهر	يوم	
80	28	27	26	25	24	16 - 23	11 - 15	9-10	7-8	5-6	1 - 4
X 1	1 مشاهد تأخر 2 مشاهد غاب 9 سبب آخر	1 بارد 2 معتدل 3 حار 4 خمسين	0 لا يوجد 1 رذاذ 2 مطر 3 ثلج	0 لا توجد 1 توجد	ظهر أشر X	١ ٢ ٣ ٤ ٥ ٦ ٧ ٨					

	عدد المشتركين من الصفوف									اسم اللعبة	صورة اللعب	طول اللعب	انتهاء اللعب	الدين	مكان اللعب	رقم الجماعة	
		١	٢	٣	٤	٥	٦	٧	٨								
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 - 25	20	19	18	17	16	11 - 13	1-10
	اولاد										1 يلعبون 2 يتخاصمون 3 غناء	1 طويل 2 قصير	1 جرس 2 خصام داخلي 3 خصام خارجي 4 لعبة جديدة 5 الطقس 6 المعلم 7 انقطعوا 9 آخر	1 مسلم 2 مسيحي 3 مزيج	1 معبد 2 رمل/تراب 3 كركار 4 في البناية 5 عشب 6 وحل 9 آخر		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	بنات																

	عدد المشتركين من الصفوف									اسم اللعبة	صورة اللعب	طول اللعب	انتهاء اللعب	الدين	مكان اللعب	رقم الجماعة	
		١	٢	٣	٤	٥	٦	٧	٨								
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 - 25	20	19	18	17	16	11 - 13	1-10
	اولاد										1 يلعبون 2 يتخاصمون 3 غناء	1 طويل 2 قصير	1 جرس 2 خصام داخلي 3 خصام خارجي 4 لعبة جديدة 5 الطقس 6 المعلم 7 انقطعوا 9 آخر	1 مسلم 2 مسيحي 3 مزيج	1 معبد 2 رمل/تراب 3 كركار 4 في البناية 5 عشب 6 وحل 9 آخر		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	بنات																

X 2	بنات												6 المعلم 7 انقطعوا 9 آخر		6 وحل 9 آخر		

		عدد المشتركين من الصفوف								اسم اللعبة	صورة اللعب	طول اللعب	انتهاء اللعب	الدين	مكان اللعب	رقم الجماعة	
		١	٢	٣	٤	٥	٦	٧	٨								
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 - 25	20	19	18	17	16	11 - 13	1-10
	أولاد										1 يلعبون 2 يتخاصمون 3 معاً	1 طويل 2 قصير	1 جرس 2 فصل داخلي 3 فصل خارجي 4 لعبة جديدة 5 الطقس 6 المعلم 7 انقطعوا 9 آخر	1 مسلم 2 مسيحي 3 مزيج	1 معبد 2 رمل/تراب 3 كركار 4 في البناية 5 عشب 6 وحل 9 آخر		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	بنات																

		عدد المشتركين من الصفوف								اسم اللعبة	صورة اللعب	طول اللعب	انتهاء اللعب	الدين	مكان اللعب	رقم الجماعة	
		١	٢	٣	٤	٥	٦	٧	٨								
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 - 25	20	19	18	17	16	11 - 13	1 - 10
	أولاد										1 يلعبون 2 يتخاصمون 9 معاً	1 طويل 2 قصير	1 جرس 2 فصل داخلي 3 فصل خارجي 4 لعبة جديدة 5 الطقس 6 المعلم 7 انقطعوا 9 آخر	1 مسلم 2 مسيحي 3 مزيج	1 معبد 2 رمل/تراب 3 كركار 4 في البناية 5 عشب 6 وحل 9 آخر		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	بنات																

		عدد المشتركين من الصفوف								اسم اللعبة	صورة اللعبة	طول اللعبة	انتهاء اللعب	الدين	مكان اللعب	رقم الجماعة	
		١	٢	٣	٤	٥	٦	٧	٨								
		46-47	44-45	42-43	40-41	38-39	36-37	34-35	32-33	21 - 25	20	19	18	17	16	11 - 13	1-10
	أولاد										1 يلعبون 2 يتخاصمون 3 معاً	1 طويل 2 قصير	1 جرس 2 فصل داخلي 3 فصل خارجي 4 لعبة جديدة 5 الطقس 6 المعلم 7 انقطعوا 9 آخر	1 مسلم 2 مسيحي 3 مزيج	1 معبد 2 رمل/تراب 3 كركار 4 في البناية 5 عشب 6 وحل 9 آخر		DUP
80		78-79	76-77	74-75	72-73	70-71	68-69	66-67	64-65								
X 2	بنات																

APPENDIX B

SAMPLE QUESTIONNAIRES FOR STRUCTURED AND UNSTRUCTURED ("SPONTANEOUS") GAME DESCRIPTIONS

Children's Games Research

THE HEBREW UNIVERSITY OF JERUSALEM

Department of Psychology

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GAME DESCRIPTION

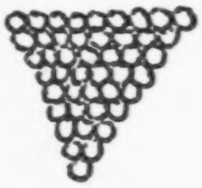
Name of the game *Crossing out circles*

The child who demonstrated and explained the game is in Grade *6*

Name of observer *Utzah Rol*

Location *Deganiah (Kibbutz)*

Date *30/12/65*

Drawing that the children draw for the purpose of the game.	Sketch of the position of the children during the game.
	

A. Describe in detail the play activity of each participant throughout the game.

The preparatory stage: (1) The order is determined by "declaration" i.e., the person who shouts "first" has the first turn, the same of the second turn, and so on.

(2) Nine rows of circles are drawn on the backboard. In the top row there are 9 circles, in the second row - 8, in the third - 7, and so on. See drawing above.

The game itself: Each child in his turn draws a line through one of the circles. It is forbidden to draw a line through a previously marked circle. During the game all the circles are eventually crossed out. The player who scores out the last circle in a horizontal row receives a number of points equivalent to the number of circles in the row minus 1. Thus the range of points for crossing out the last circle of a row is 0 - 8. Crossing out the single circle in the last row does not entitle the player to any points. When all the circles have been crossed out the game is over, and the child with the most points is the winner.

Remarks: The game is characteristic of wet days when the children don't leave the classroom during the interval.

B. Is the game played

1. mainly by boys
2. mainly by girls

[✓ 3.] by both sexes

C. The range of Grades playing this game is 4 - 6

D. How many children usually play the game 3 - 4

E. Is there a division of tasks in the game?

1. Yes (e.g. in hide and seek -- those hiding and the seeker; in tag -- "het" and the "runners")

[✓ 2.] No (e.g. in fivestones each participant has the same task)

If yes, list the different tasks:

1. ______
2. ______
3. ______
4. ______
5. ______
6. ______

F.* In the game is there a division into:

[✓ 1.] Individuals (e.g. fivestones, hopscotch, marbles, sevens, etc.)

2. Individual and group (e.g. tag, hide and seek, eggy, etc.)
3. Individuals and group (e.g. skipping -- two ends and the group of skippers, Gumi, etc.)
4. Individual and groups (e.g. two groups and a referee)
5. Groups (e.g. soccer, cops and robbers, etc.)

---

* A group is defined as two or more players working towards a common goal such as joint or common victory. Players who do not work towards a common aim (e.g. the two ends in skipping each of whom is responsible for her own end) do not form a group, even if they have similar tasks.

G. Does a mistake or failure on the part of one of the participants give him a lesser achievement than the rest of the participants or cause him to loose (e.g. standing on a line, failure to catch a ball, forgetting a turn, slow running, being caught in tag, etc.)

1. *An incorrect calculation enables the other players to accumulate more points.*
2.
3.
4.
5.
6.
7.

H. Are there turns in the game (players having to "go" in a fixed order)?

[✓ 1.] Yes (e.g. in fivestones, marbles, etc.)
2. No (e.g. in hide and seek or soccer)

I. Is there ultimate victory in the game? (Victory for an individual or a group, occuring at the end of the game and recognized by all participants.)

[✓ 1.] Yes (e.g. fivestones, hopscotch, football, etc.)
2. No (e.g. tag, dancing, skipping, etc.)

J. What are the achievements which determine the victory for the individual and the group (e.g. accumulation of a maximum number of good points, of a minimum of bad points; or all the other players' participation terminates as a result of having to leave the game; or the victor or winner finishes all of the stages of the game first or completes more stages within a fixed period; or all the other players lose their possessions).

Accumulation of more points than the rest of the participants

K. Does the game require any accessories (marbles, sticks, stones, skipping rope, etc.)

If so, list them:

1. *Blackboard*
2. *Chalk*
3.
4.

Children's Games Research

THE HEBREW UNIVERSITY OF JERUSALEM

Department of Psychology

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DESCRIPTION OF GAME

Name of the game *Hospital Tag*

Name of observer *Yehoshua Lev*

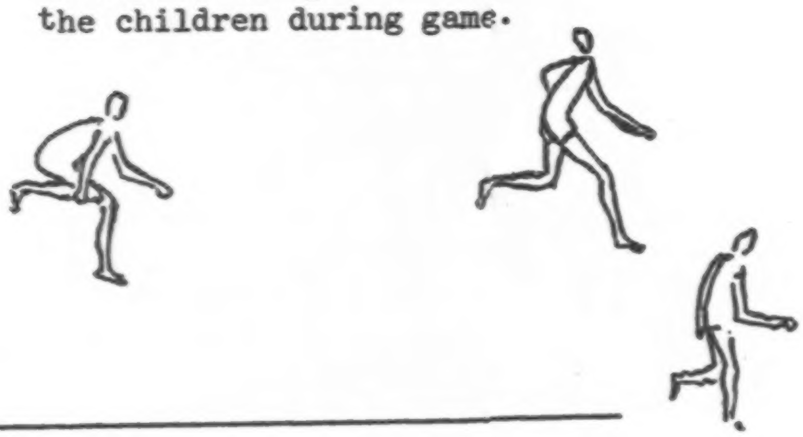
Date *3/10/65*

The child who demonstrated and explained the game is in Grade *4*

Location *Be'eri School, Jaffa.*

Drawing that the children draw for the purpose of the game

Sketch of the position of the children during game.



A. Describe in detail the play activity of each participant throughout the game.

The preparatory stage: The players decide who will be "het" (the catcher) in two stages. (1) First of all three of the players perform "From 3 one goes out." Each player hides his hand behind his back, and they chant together "from three one goes out." On saying the last word, each of them displays his hand, palm up or palm down. The player who is in the minority (with regard to the position of his palm) goes out. The two players left are joined by a third and the same procedure is followed until only two children are left, one of whom will be "het." (2) The final decision as to who will be "het" is decided by "odds or evens." One of the children d declares "evens," the second child then represents "odds." Tehn, at the same time, they put out their hands with as many fingers extended as they please. If the number of fingers extended by both of them adds up to an even number, the child who called "evens" wins and the other child is the loser, and viceversa for an odd number. The loser is "het."

The game itself: The "het" counts from 1 to 10 and the other children disperse and run away from him. The "het" tries to catch one of the others by touching him on some part of his body. The person who is caught becomes "het" and runs after the others, holding with one hand the "afflicted" part of his body, on which he was caught. Each "het" who succeeds in catching someone else becomes "healthy" and continues to run with the others without any limitations. In this way the task of "het" passes from child to child. Of course, each "het" tries to touch his "victim" in some spot which will make it difficult for him to run after the others when he becomes "het." The game is full of laughter, because the picture of the "het" holding some part of his body (occasionally even his toes) and trying to catch the others despite his ridiculous posture, is extremely amusing.

B. Is the game played
   1. mainly by boys
   2. mainly by girls
   [✓ 3. by both sexes]

C. The range of Grades playing this game is *4 - 6*

D. How many children usually play the game *5 - 10*

E. Is there a division of tasks in the game?
   [✓ 1. Yes] (e.g. in hide and seek -- those hiding and the seeker; in tag -- "het" and the "runners")
   2. No (e.g. in fivestones each participant has the same task)
   If yes, list the different tasks:
   1. *The catcher ("het", "it", or "tag")*
   2. *Those running away.*
   3. ______
   4. ______
   5. ______
   6. ______

F.[*] In the game is there a division into:

1. Individuals (e.g. fivestones, hopscotch, marbles, sevens, etc.)
[✓ 2.] Individual and group (e.g. tag, hide and seek, eggy, etc.)
3. Individuals and group (e.g. skipping -- two ends and the group of skippers, Gumi, etc.)
4. Individual and groups (e.g. two groups and a referee)
5. Groups (e.g. soccer, cops and robbers, etc.)

G. Does a mistake or failure on the part of one of the participants give him a lesser achievement than the rest of the participants or cause him to loose (e.g. standing on a line, being caught in tag, etc.)

1. *Being caught.*
2. ____
3. ____
4. ____
5. ____
6. ____
7. ____

H. Are there turns in the game (players having to "go" in a fixed order)?

1. Yes (e.g. in fivestones, marbles, etc.)
[✓ 2.] No (e.g. in hide and seek or soccer)

I. Is there ultimate victory in the game? (Victory for an individual or a group, occurring at the end of the game and recognized by all participants.)

1. Yes (e.g. fivestones, hopscotch, football, etc.)
[✓ 2.] No (e.g. tag, dancing, skipping, etc.)

---

[*] A group is defined as two or more players working towards a common goal such as joint or common victory. Players who do not work towards a common aim (e.g. the two ends in skipping each of whom is responsible for her own end) do not form a group, even if they have similar tasks.

J. What are the achievements which determine the victory for the individual and group (e.g. accumulation of a maximum number of good points, of a minimum of bad points; or all the other players' participation terminates as a result of having to leave the game; or the victor or winner finishes all of the stages of the game first or completes more stages within a fixed period; or all the other players lose their possessions).

____

____

____

____

K. Does the game require any accessories (marbles, sticks, stones, skipping rope, etc)

If so, list them:

1. ____
2. ____
3. ____
4. ____

DESCRIPTION OF SPONTANEOUS GAME

Checked for duplicates ......

Name of the school *Rehaviah*

Date of observation *6/12/65* Grades *3* Name of the game *Basketball with stones*

Group no. *30* Sex of players *male* Name of observer *Therese Hagad*

Sketch of the position of the children during game.	Drawing that the children draw for the purpose of the game.	Are there any accessories? [✓ Yes,] No. Which? 1) *small stones* 2) .... 3) .... 4) ....

Description of the game:

The children stood approximately 1 yard from a basketball stand. Each one, in turn, threw a small stone in the direction of the stand and tried to get it into the basket.

1. Is the activity carried out in anger, aggression, or in [✓ good spirits?]
2. What is the objective of the activity (e.g. a child throwing a stone may be trying to hit another child; may be trying to hit a specific defined target; or without any specific defined goal)?

   To shoot the stone into the basket.

Note

1. The name of the game should characterize the activity contained in the game. For example instead of "wrestling" the observer could record "wrestling with intent to throw to the ground," or "fighting over a ball," or "the bigger boys wrestling against the smaller boys."

2. Movements. All movements must be described in detail. For example instead of "made movements with their hands," the observer could write "waved their arms back and forward whilst clapping hands."

5

DESCRIPTION OF SPONTANEOUS GAME

Checked for duplicates ✓

Name of school *Rehaviah*

Date of observation *24/1/65* Grades *1* Name of the game *Building castles in the san*

Group no. *28* Sex of players *mixed* Name of observer *Giora Kronzon*

Sketch of the position of the children during game.

Drawing that the children draw for the purpose of the game.

Are there any accessories?
Yes. [✓ No.]

Which?
1) ....
2) ....
3) ....
4) ....

Description of the game:

The children (who were six in number) heaped up piles of sand and dug "tunnels" under them. Each child dug from one side of a heap whilst his partner dug from the other side. When they "met up", i.e. when they touched hands, they let out shrieks of joy. Then they jumped on top of the pile of sand and flattened it.

1. Is the activity carried out in anger, aggression, or in [✓ good spirits?]

2. What is the objective of the activity (e.g. a child throwing a stone may be trying to hit another child; may be trying to hit a specific defined target; or [✓ without any specific defined goal])?

Note

1. **The name of the game** should characterize the activity contained in the game. For example instead of "wrestling" the observer could record "wrestling with intent to throw to the ground", or "fighting over a ball", or "the bigger boys wrestling against the smaller boys".

2. **Movements.** All movements must be described in detail. For example instead of "made movements with their hands", the observer could write "waved their arms back and forward whilst clapping hands".

DESCRIPTION OF SPONTANEOUS GAME

Checked for duplicate ....

Name of the school *Kiryat Shmonah (development town)*

Date of observation *2/5/65*   Grades *3 - 5*   Name of the game *War of Independence*

Group no. *5*   Sex of the players *mixed*   Name of observer *Judith Bein*

Sketch of the position of the children during game.

Drawing that the children draw for the purpose of the game.

Are there any accessories? [✓ Yes.] No.

Which ones?

1) *"Durdurim"*
2) *cardboard boxes*
3) ....
4) ....

Description of the game:

The children called the game "The War of Independence" because Grades 3 and 4 "were fighting" Grade 5.

Each group threw "Durdurim" (which are a kind of nut or berry picked from bushes) at the "enemy."

The children protected themselves with the cardboard boxes, or hid behind a wall. The game was accompanied by "war cries."

1. Is the activity carried out in anger, aggression, or [✓ in good spirits?]

2. What is the objective of the activity (e.g. a child throwing a stone may be trying to hit another child; may be trying to hit a specific defined target; or without any specific defined goal)?

   To hit one of the "enemy" with the "Durdur."

Note

1. The name of the game should characterize the activity contained in the game. For example instead of "wrestling" the observer could record "wrestling with intent to throw to the ground," or "fighting over a ball," or "the bigger boys wrestling against the smaller boys."

2. Movements. All movements must be described in detail. For example instead of "made movements with their hands," the observer could write "waved their arms back and forward whilst clapping hands."

APPENDIX C

ILLUSTRATED GLOSSARY OF CODE TERMS FOR THE MOTION COMPONENTS OF GUMMI (JAPANESE ELASTIC)

AN ILLUSTRATED CODE OF MOTION COMPONENTS FOR A VARIANT OF GUMMI (JAPANESE ELASTIC)

The code was developed for purposes of recordings, see pp. 218-219a. Each ellustration and term represent one, and up to three positions reached by going through specified motion components, sequences of which constitute a complete move. An example of such a move is: 2in/bkb, RinLout/fh, lin-loutSlb/fout, 2out/fout (see: 2,8,22,10), performed consecutively.

Each illustration shows, each code indicates, and each description specifies,

either (a) the final position reached from any other position in one jump (1-8),
or (b) the final position reached from specific positions in one jump (9-16),
or (c) the final positions reached from specific positions by stepping or shifting of feet (17-22),
or (d) the final position reached in a double jump and a turning of heels (23),
or (e) the final position reached in a double jump (24-25).

In the following descriptions, each of the long sections of the stretched elastic is called a "band."

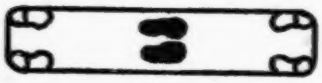
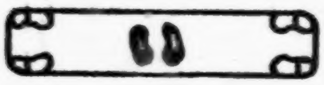
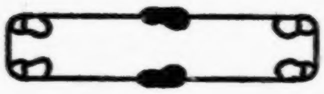
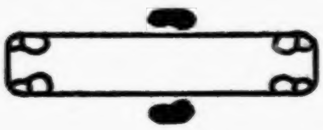
	ILLUSTRATION	CODE	DESCRIPTION
(a)			
1		2in/fh	Standing within the elastic, facing one of the holders.
2		2in/bkb	Standing within the elastic, with the back to one of the bands.
3		lone/fh	Standing with one foot on each band, facing one of the holders.
4		loute/fh	Standing with one foot on the outside of one band, and with the other on the outside of the other band, facing one of the holders.

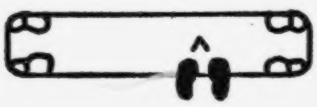
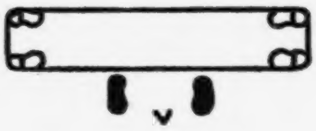
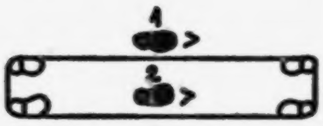
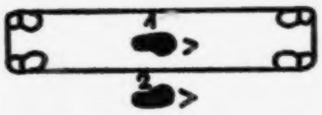
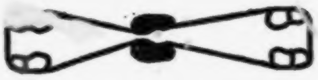
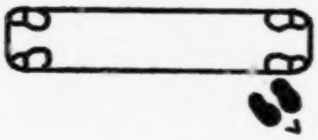
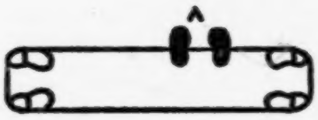
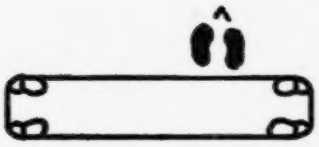
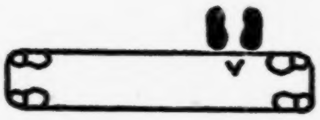
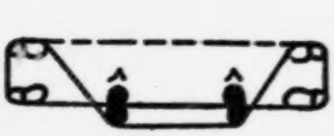
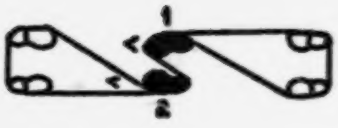
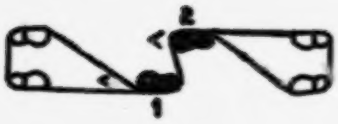
	ILLUSTRATION	CODE	DESCRIPTION
5		2-1b/in	Standing with both feet on one of the bands, facing inside.
6		2out/fout	Standing with both feet outside the elastic, facing outside.
7		LinRout/fh	Standing with the left foot inside the elastic and the right outside of it, facing one of the holders.
8		RinLout/fh	Standing with the right foot within the elastic and the left outside of it, facing one of the holders.
(b)			
9		loute tog/fh	Standing with legs held close together and the two bands between them, facing one of the holders. Starting position: 4.
10		2out/fout	Standing with both feet outside of the elastic, facing outside. Starting position: 1.
11		2onl/fout	Standing with both feet on one of the bands, faceing outside. Usual starting positions: 5.
12		2out/fin	Standing with both feet outside of the elastic, facing outside. Usual starting position: 7.
13		2out/fin	Standing outside of the elastic facing inside. Starting position: 2.

	ILLUSTRATION	CODE	DESCRIPTION
14		2onLb Rbxbk /fin	Standing on the straight band with the crossed band stretched behind, facing inside. Starting position: 23.
15		2inS/fh	Standing with the bands S-shaped around the two legs, facing one of the holders. Starting position: 4 (this requires a 180° turn in the jump).
16		2XinS/fh	Standing with the bands S-shaped around the crossed legs, facing one of the holders. Starting position: 4.

Position Reached by Stepping or Turning on One's Heels, or Shifting Feet.

(c)

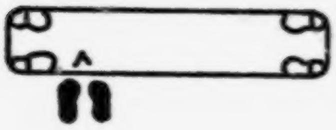
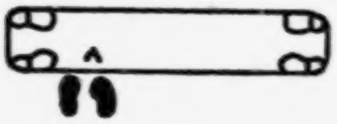
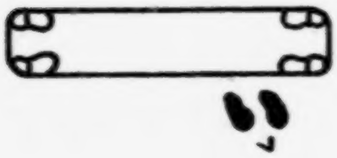
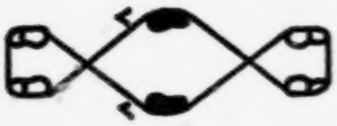
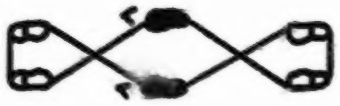
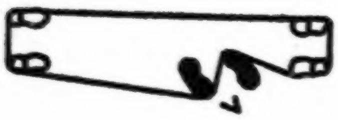
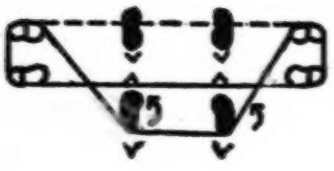
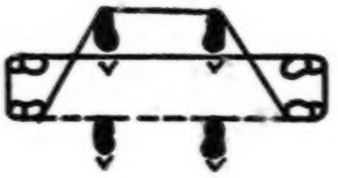
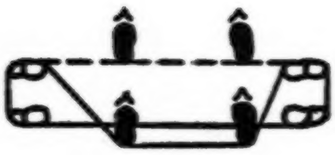
	ILLUSTRATION	CODE	DESCRIPTION
17		Stp/2out /fin	Standing outside, facing inside. Starting positions: 10, 12.
18		Stp/2out /fin	Standing outside, facing inside. Starting position: 2.
19		Stp/2out /fout	Standing outside, facing outside. Starting positions: 1, 2.
20		2in apt/fh	Standing inside the crossed bands, with legs apart, facing one of the holders. Starting positions: 23,24.

	ILLUSTRATION	CODE	DESCRIPTION
21		1onex/fh	Standing with each foot on one of the crossed bands, facing one of the holders. The position is reached with the aid of the hands. Starting position: 20.
22		1in1out S1b/fout	Standing with one of the bands S-shaped around the legs, facing outside. Starting position: 8.
(d)			
23		2out1b/fin +2inX/fout +heel/fin	a. Standing outside, facing inside, both legs touching one of the bands. b. Standing with both feet inside the crossed band, facing outside, both legs touching one of the bands. Reached from 23a. c. Standing with both feet inside the crossed band, facing the inside of the band. Reached from 23b by turning on one's heels.
(e)			
24		2out t1b /fout +2in X /fout	a. Standing outside, facing outside, with both legs touching one of the bands. b. Standing with both feet inside the crossed band, facing inside.
25		2out t1b /fout +2on b2/fin	a. Standing outside, facing outside, both legs touching one of the bands. b. Standing with both feet on the straight band, facing inside.

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RETRIEVAL TERMS
games: Encyclopedia of, structured, unstructured, periodic, sporadic, super-, sequences, rules, exclusive boys'/girls', predominant boys'/girls', of strategy/skill/chance, invention of, planting of, diffusion of, functions of; play: groups, participation, length of; termination of; space, surface, materials; group size, quarrel, competition, outcomes, material gain; lone players, onlookers, conversers; age, grade, boys, girls, children, school, development, education; observations, town, immigrant town, village, kibbutz, Israel, Jewish, Arab, socio-economic level.

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Israel Ministry of Education

ABSTRACT During the two stages of the investigation (1964-66), observations of children in freely formed playgroups were conducted in 27 Israeli schools, Jewish and Arab. The cumulative record of play participants throughout the complete period amounted to over 120,000 units. Amongst the variables recorded with reference to each play group were its size, its composition by grade and sex, ethnic or religious affiliation of the participants, length of play, incidence of quarrel, play area and surface and the name of the game. An Encyclopedia of Games has been compiled, in which some 5,000 descriptions of games and their variants have been systematically categorized and encoded. Examples of the types of analysis conducted are the following: "Supergames", which never disappear from the play scene, have been distinguished from "periodic" and "sporadic" games, and characteristics which determine the life span of a game have been defined. An analysis of the extent of interaction in play between boys and girls has revealed that about one quarter of them play in mixed groups, though there is a considerable variability in this respect, depending on age and culture. In all cases, however, more girls play with boys than vice versa, and indeed, girls have fewer games which they call entirely their own. Typical boys' games have been distinguished from typical girls' games, on such characteristics as extent of interdependence between players, outcomes of winning or losing (both more characteristic of boys' games), and precise prescription of action sequences (typical of girls' games). The data analyzed has theoretical implications related to child development and to the nature of play and games; it is also of immediate practical relevance to such problems as the design of playgrounds and play sessions, and to the planning of educational games and toys.